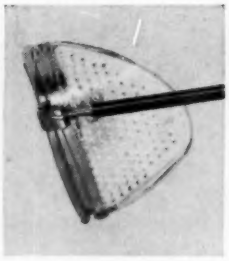
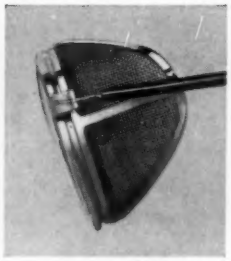
Safety Maintenance

AMERICA'S PIONEER INDUSTRIAL SAFETY MAGAZINE • JUNE, 1960 • 50¢
Published By Alfred M. Best Company, Inc.

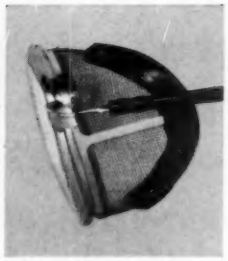
Acetate in clear or green.



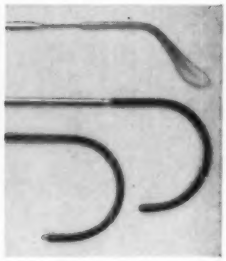
Perforated acetate.



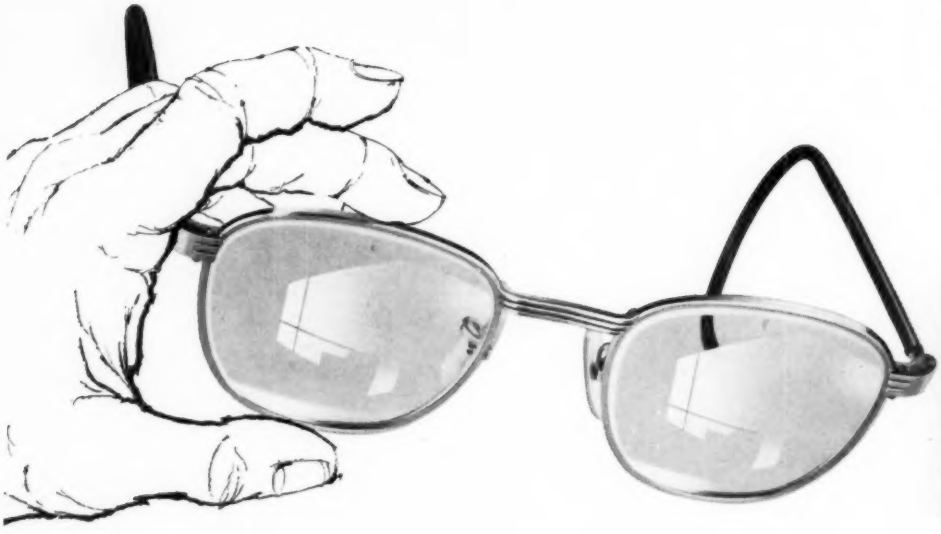
Wire mesh side shield.



Insulated mesh side shield.



Spatula or cable temples.



Bal-SAFE lenses in Ray-Ban.

Featherweight Enduron plastic.

ONE FRAME SERVES MANY EYE PROTECTION NEEDS

See how many ways this single sturdy metal safety frame can serve in your plant.

The M-70 features a unique expansion endpiece for quick, easy change-over of temples, side shields and lenses. The same front can be used both with and without side shields, and shields are held firmly as though a permanent part of the frame. This is a real factor in economy.

Engineered for maximum strength, this 18% nickel silver frame offers extreme comfort and—with its neatly engraved bridge and endpieces—imparts a distinct note of modern styling.

Perhaps no other B&L safety frame so lives up to its promise of protection *plus* economy *plus* worker acceptance. To see samples, call your B&L supplier, or write: Bausch & Lomb, 90506 Lomb Park, Rochester 2, New York.

BAUSCH & LOMB

Protection PLUS Safety Products

protection + economy + worker acceptance

(For details, use Key # S-1 on card on page 1)

LOSS STOPPERS

The bulletins and catalogs reviewed below are offered by the Reader Service Department of *SAFETY MAINTENANCE*. To obtain copies without cost or obligation, write in the key numbers on the Reader's Inquiry Card.

FIRE PROTECTION

Fire Retardant Paints 328
Albi Mfg. Co., Inc. "Paint Your Way to Fire Safety" is the title of this 12-page bulletin that explains how fire-retardent paint works and how it is applied in all types of industrial, commercial and institutional buildings for both combustible building materials and structural metal. Includes data on the relative costs of materials and labor as compared with ordinary paints and on the meaning of the U.L. flame-spread ratings.

Fire Control Charts 329
Walter Kidde & Co., Inc. A new two-color chart explains the three classes of fires and and the approved portable extinguishers to be used on each. It shows the latest models of extinguishers and detailed information on the U.L. ratings.

Automatic Fire Alarm 330
Standard Fire Alarm & Signal, Inc. A U.L.-approved self-contained fire alarm that is activated by Freon gas when there is an abnormal heat rise is described in this folder. Suitable for small plants, offices, stores, apartment buildings, farms and homes, the horn alarm unit is available in two temperature ratings. Unit has visual monitor to show that container is fully charged. System type installations for larger plants are also outlined.

Non-Sparking Tools 331
Ampco Metal, Inc. Non-Sparking safety tools are described in a newly revised and updated catalog, which points out that these tools have been approved by Factory Mutual for use where a spark could ignite flammable materials, vapors or gases. The 24-page catalog gives data on newly strengthened standard tools and on new items such as channelock pliers, adjustable end wrenches, air hammer chisels, allen wrenches.

MATERIALS HANDLING

Safety Devices for Materials Handling 332
E. D. Bullard Co. This specialized new catalog describes and illustrates several safety items to prevent accidents during materials handling operations. Divided into four sections, the catalog gives data on: 1. safety hooks for cranes, hoists and pullers; 2. high voltage insulated tension link; 3. back-up alarm for trucks and vehicles; 4. auto safety belts and safety truck steps.

Shipping & Warehousing Safety .. 333
Manpower, Inc. A special report on efficiency in shipping and warehousing has been made available in a new booklet, "100 Ways to Save Money in Packing, Shipping and Stockroom Operations." It contains recommendations on general administration, packing, warehousing, etc.

Manual Bridge Cranes 334
Wright Hoist Div., American Chain & Cable Co., Inc. This folder outlines the features of a top-running, single bridge, hand traveling crane, available in capacities of 1 to 10 tons and in spans up to 50 feet. Includes tables of weights, capacities and other specifications.

Wire Rope Strengths 335
Macwhyte Wire Rope Co. This condensed catalog lists the new weights and strengths of two types of wire rope. The bulletin also gives explanations of wire rope construction and ordering information.

PERSONAL PROTECTIVE EQUIPMENT

Miner's Cap Lamp 336
National Mine Service Co. This 4-page bulletin describes a twin-filament, krypton-filled bulb, fingertip focusing, greater battery capacity and other features of the Wheat National Model electric cap lamp. Unit has Bureau of Mines approval; features a perfect spot with either filament.

Safety Spectacles 337
American Industrial Safety Equipment Co. Advantages of comfortable, easy fit for over 95% of wearers, with the Eyegard Adapta-Spec bridge, reduced inventory problems, etc., are discussed in this brief bulletin.

Linemen's Equipment 338
Industrial Products Co. A new 4-page bulletin features linemen's equipment and related accessories. Included are such items as linemen's glove bags, safety pouches, clamp-on type danger flags and pole truck flag holders.

PLANT MAINTENANCE

Industrial Sanitation 339
Huntington Laboratories, Inc. This well-illustrated 32-page booklet encompasses a range of products dealing with cleaning, disinfecting and general maintenance. Items described include floor machines, soap dispensers, waxes and floor finishes, and washroom disinfectants.

Aluminum Roof Coatings 340
Garland Co. 8-page brochure contains application details and complete specifications on these fiber glass reinforced aluminum roof coatings. Also discussed are additional ingredients which insulate the roof, restore its flexibility and act to prevent oxidation.

(Continued on the next page)

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READER'S INQUIRY CARD

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JUNE, 1960 **Please send me the following free data**

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Free Bulletins (Cont'd)

Anti-Slip Coating 341
Flintkote Co. An attractive, four-color, 4-page brochure details the application of Flintdeck, an anti-slip coating, in industrial, commercial and home areas. The product is described as being unaffected by oil or ordinary chemicals.

Watertight Masonry 342
Master Builders Co. Major considerations in designing tight masonry walls are outlined in this 6-page bulletin. Discussed are mortar ingredients and proportioning; compatibility of brick and mortar; control of shrinkage and bleeding; separation cracks; effect of mechanical disturbance; and importance of proper protection.

INDUSTRIAL HYGIENE

First Aid Kits 343
A. E. Halperin Co. Illustrated four-page brochure offers information in detail on several combination style first aid kits designed for effective use in industrial areas and similar locations.

Safety Enclosure for Dangerous Materials Handling 344
S. Blickman, Inc. 2-page bulletin describes newly designed, versatile enclosure. Applications cited are: as a low-intensity dry box for radioactive materials; a controlled atmosphere for physical chemistry or metallurgy involving hazardous materials; a safety enclosure for work with micro-organisms, live viruses, or contaminated animals in medical or biological research.

Noise In Industry 345
Rye Sound Corp. This short booklet discusses various aspects of noise, such as types of noise, effects, noise control, hearing loss and hearing conservation. Written for the layman, language, for the most part, is non-technical.

Nitrogen Dioxide Detector 346
Mine Safety Appliances. How detector provides rapid measurement of this contaminant is described in recently issued bulletin. Complete details are provided on the portable instrument and its widespread application to industrial processes. Outline of step-by-step operation includes instructions for sampling from remote locations.

What's YOUR Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

Key Number	Subject
	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
106	Respirators & Masks
107	Protective Clothing
108	Women's Protective Clothing
109	Safety Belts
110	Safety Gloves
112	Anti-Slip Soles
113	Oil-Resistant Soles
114	Welding Helmets
	FIRST AID AND HYGIENE
121	Skin Cleansers
122	Sanitary Drinking Facilities
123	Wash-up Facilities
124	Salt Tablets
125	Resuscitator Tubes
126	Antiseptic Medication
127	Burn Medication
128	First Aid Kits & Supplies
129	Stretchers & Litters
130	Throat Medication
131	Eye Wash Fountains
132	Portable Ventilators
133	Dust Collectors
135	Hearing Protectors
	FIRE PROTECTION
139	Fire Retardant Paint
140	Fire Extinguishers
141	Safety Cans
142	Fire Alarms
143	Safer Solvents
144	Degreasing Machines
145	Drum Safety Valve
146	Asbestos Textiles
147	Incinerators
148	Watchmen's Control Systems
149	Fire Blankets

Key Number	Subject
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151	Powered Megaphones
153	Fluorescent Lamp Guards
154	Emergency Lights
	MAINTENANCE
161	Anti-Slip Waxes & Finishes
162	Floor Cleaning Compounds
163	Floor Cleaning Machines
166	Floor Mats
167	Insulating Tape
168	Ultrasonic Flaw-Detector
169	Toilet Sanitizers
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171	Ladder Safety Devices
172	Scaffolds
173	Work Platforms
176	Fork Truck Steering Aid
177	Carboy Pumps
178	Machine Guards
	GUARDS
179	Power Press Feeders
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181	Vacuum Sheet Lifters
182	Valve Operators
184	Safety Lock-Outs
	EDUCATIONAL AIDS
191	Safety Signs
192	Safety Awards & Emblems
193	Employee Safety Guide
195	Changeable Letter Signs
196	Safety Poster Kit

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Safety Maintenance

formerly "SAFETY ENGINEERING"

Volume 119, Number 6 **June, 1960**

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Cover picture by courtesy of E. I. du Pont de Nemours & Co., Inc.

AMERICA'S PIONEER INDUSTRIAL SAFETY MAGAZINE

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it's SAFE to say

● WRONG EMPHASIS

All of us are thoroughly familiar with the type of individual who is called, among the more printable terms, "Butterfingers." Often he is known as an accident-repeater or, slightly more scientifically, the accident prone worker. In any event, he seems to fall more often, drop more material and suffer some form of bodily injury a little more frequently. Often, of course, he is the dishonest maligner who thinks he has discovered some way of getting something for nothing.

According to Dr. Howard A. Rusk, in a recent "New York Times" article, researchers long have been concerned with attempting to develop methods of identifying the abnormal personality characteristics that make some persons accident prone. Dr. Rusk states that some experts now doubt the validity of this approach and see it of little practical use, since more recent studies show that chance plays a far more important role in accidents.

If this theory of chance has any weight, and we think it does, it becomes relatively more important to defeat the **results** of chance by stepping up the emphasis upon protective equipment and devices. It can be assumed that in any group of industrial workers, there can be found the accident-repeater, innocent though he may be of any deliberate attempt at maligning. It is quite true that if Joe Blow has too many accidents over a given period in relation to the accident experience of his fellow-workers, management will have little or no need for a psychiatrist to point out that something in Mr. Blow's character make-up may be held accountable. However, as H. W. Heinrich, that dean of safety, emphasized long ago, we can do a job unsafely just so many times before the laws of chance take over and we suffer an injury.

Naturally, we would approach the Utopian life if we could find a way to banish all accidents. Fortunately, however, there is at our finger-tip disposal a way of preventing or at least minimizing the **results of most accidents.** A pair of goggles will not prevent an accident of a molten metal splash, but that pair of goggles certainly can prevent the results of the accident—a permanently lost eye.

A specific example is the illustrated case history appearing in SAFETY MAINTENANCE each month. Formerly that column was headed "Another Accident Checked." Many readers suggested the more accurate title, "Another Injury Checked" and the change was made.

How simple would be our task if we could remove the so-called accident prone individual from a danger zone and thus automatically make a deep dent in our injury statistics. The factor of chance can not be circumvented so easily.

So perhaps Dr. Rusk is correct in stating that exaggerated attempts to identify accident prone individuals and control them by disciplinary measures is not the entire answer to injury prevention. Unfortunately, the laws of chance have not been repealed as yet and we cannot look forward confidently to any removal of those laws in the foreseeable future. That being so, whether or not a man has been scientifically classified as accident prone, the fact remains that the chief weapon against **injury** is some form of protection. And education alone is not the answer. It is here that protective equipment or, better still, the total banishment of the hazard where feasible will safeguard the man whether he is known as Butterfingers, the careless goon or the safest worker on the job.

● WHAT PRICE ACCIDENTS?

Our safety-minded good neighbors in Canada estimate that the total cost of industrial accidents across that country would approximate eight hundred million dollars in a year. Apparently a Canadian newspaper is somewhat doubtful and pointed out editorially that this would represent about 75 percent of Canada's total annual defense expenditure.

So what? For those who would find the figure hard to believe, the Industrial Accident Prevention Associations in Ontario remind members that the total direct cost for compensation and medical aid paid out by the ten Canadian compensation boards in 1959 will be about $140,000,000. Using the now too conservative Heinrich formula of four dollars of indirect cost to every dollar of direct cost, this means that total costs are roughly five times the direct costs or seven hundred million in accident costs for Canada.

There are still those who fail to reckon such indirect but very present costs as time of foremen and others investigating an accident, reporting them, calling on the injured in a hospital or at home, time of other workers, time of first aid, clerical detail incident to the accident, material spoilage, reduced production, expense of training a replacement, etc., etc., etc. The annual defense expenditure of any country is essential. But whoever dared to call injuries an essential part of maintaining existence?

THE *1-2-3* OF NOISE MEASUREMENT

1 SOUND-SURVEY METER, TYPE 1555-A . . . $165

With this handy, battery-operated and self-contained instrument you can "survey" your plant or office, pinpoint the noise at its source, and note its relative level.

★ One-hand Operation . . . Function and Level Controls operated with thumb and fingertips.

★ Function Switch permits selection of meter characteristics based on American Standards Association requirements. Two check positions show condition of batteries at a glance.

★ Easy to Read . . . Sound level is given by setting of Level Control plus meter reading. For example, instrument in photo indicates 100 db plus 4 db or 104 db. Range is from 40 to 136 db above standard reference level.

★ Compact . . fits in coat pocket ★ Inexpensive

2 SOUND-LEVEL METER, TYPE 1551-B . . . $415

This is a more versatile instrument than the Sound-Survey Meter, suitable for the most exacting acoustic measurements. It permits accurate measurements over a wide range, from 24 to 140 db (and to 170 db with accessory microphone). Its three-stage amplifier system has an essentially flat frequency-response characteristic from 20 cycles to 20 kc which makes this instrument an excellent preamplifier for analyzers and recorders of all types. A convenient calibration circuit permits rapid standardization at any time.

3 FOLLOW-UP WITH DETAILED NOISE ANALYSIS

For detailed analysis of the frequency spectrum, one or more of the analyzers described below are recommended for use with the Type 1551-B Sound-Level Meter.

OCTAVE-BAND NOISE ANALYZER, TYPE 1550-A . . . $575 . . . permits determination of the frequency distribution of the noise, i.e., whether the noise is concentrated in a particular area of the frequency spectrum. Such analysis provides the information that is needed for corrective action. Measurements of relative noise levels in each of eight octave bands can be made over the frequency range from 20 cps to 10,000 cps, the section of the audio spectrum in which most machinery noises occur.

SOUND AND VIBRATION ANALYZER, TYPE 1554-A . . . $1060 . . . measures the amplitudes of individual frequency components or of narrow bands over the audio spectrum. The details of analysis are much "finer" than provided by the Octave-Band Noise Analyzer. Consequently, the Sound and Vibration Analyzer is invaluable for the study of reciprocating, rotating, or cyclic-machinery noises and vibrations whose frequency spectra usually consist of discrete frequency components that are harmonically related. Frequency range is 2.5 to 25,000 cps.

IMPACT NOISE ANALYZER, TYPE 1556-A . . . $220 . . . for the accurate measurement of short-duration impact noises emitted by punch presses, metal shears, riveting, the firing of weapons, typewriters, and other impact-noise producing equipment. This instrument measures three essential impact-noise characteristics over the range from 5 cps to 20 kc:

Peak Reading Measurement indicates the maximum instantaneous level reached by the noise.

Time Average, a measure of the average level of the noise over a selected period of time.

Quasi Peak measurement gives a continuous indication of the peak sound level.

For complete information, write for the Sound Bulletin.

GENERAL RADIO COMPANY

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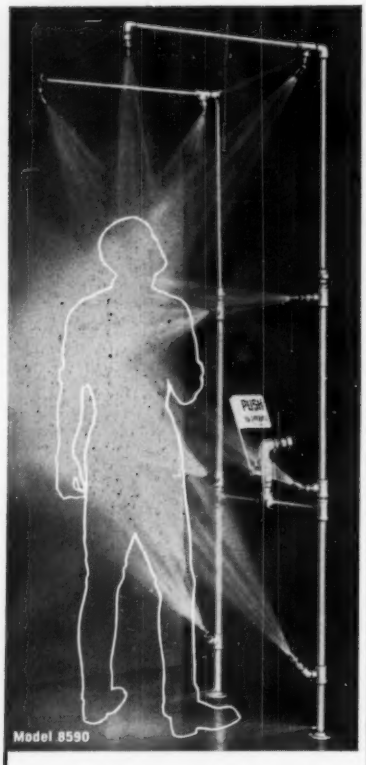

contaminants off **FAST!**

HAWS SAFETY SHOWERS send torrents of rushing water from all angles – washing away dangerous irritants in a hurry!

Slap open the conspicuous "Push to Operate" valve. Hard-running streams from 10 *adjustable* nozzles drench victims in seconds.

You can depend on HAWS for the instant, *positive* first aid so vital until medical help arrives.

This "Safety on tap" can mean the difference between temporary irritation and permanent injury. Get the facts! Write for HAWS new safety catalog. Do it today!

Valve shown three-quarters open.

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(Use Key # S-3 on inquiry Card on page 1)

CHECK LIST of aids to production

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Disposable Plastic Gloves 64
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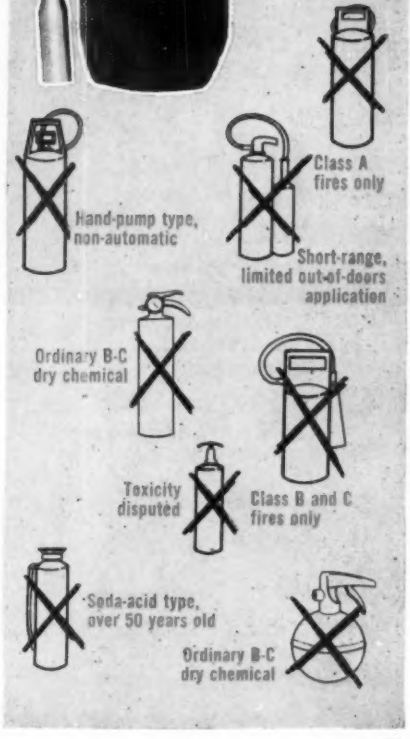
Portable Welding Screens 61
Line Tester for Sprinklers 61
Water Wetting Agent 63
New Extinguisher Bracket 63
New Extinguisher for All Fires 65

You certainly had enough fire extinguishers out there, Harry. Why weren't any of them used?
Look, Joe, we had all kinds of materials burning at once — and nobody knew which extinguisher to use. What's the good of an extinguisher if you can't just pick it up and use it on any kind of fire? We could have had thousands of extinguishers and still not have had enough.
A & A MFG. CO.

Will you be in Harry's spot one day? Don't risk it! Install...

ABC ALL CLASS THE ONLY FIRE EXTINGUISHERS APPROVED BY UNDERWRITERS' LABORATORIES FOR ALL CLASSES OF FIRES: CLASS A, B, C and MAGNESIUM


Hand-pump type, non-automatic
Class A fires only
Short-range, limited out-of-doors application
Ordinary B-C dry chemical
Toxicity disputed
Class B and C fires only
Soda-acid type, over 50 years old
Ordinary B-C dry chemical

It's now possible for you to put *one* type of fire extinguisher, the *ABC AllClass*, wherever a fire extinguisher is necessary. Out-moded, restricted-use fire extinguishers are now obsolete. With the *ABC AllClass* there's no need for a different type of extinguisher for different types of fires . . . no risk of inadvertently using the wrong extinguisher . . . no possibility of purchasing or installing the wrong type of extinguisher. So install the best . . . *ABC AllClass*.

Other fire extinguisher manufacturers put standard, restricted-use extinguishing agents into new containers of different shapes and sizes and claim "great advances" in fire protection. But Alim Corporation — specialists in industrial and military fire protection — set itself the task of discovering the ultimate in fire extinguisher effectiveness: a universal, all-purpose fire extinguishing agent.

Result: *Alim ABC AllClass Powder*, contained in all *ABC AllClass Fire Extinguishers*.

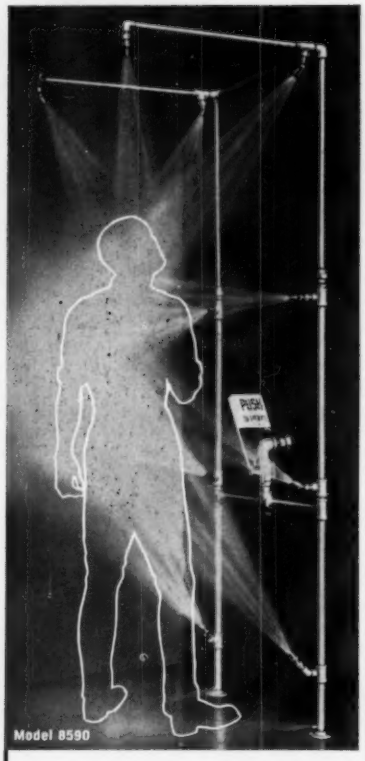
To you, the *ABC AllClass* represents a revolutionary advance in fire-fighting equipment. Now available throughout the United States and Canada from franchised distributors.

Manufactured for **ALIM CORPORATION**
Manufacturers of Sall *Fire Retardant Paints*
by **STOP-FIRE Inc.,** *New Brunswick, N. J.*

Write to **ALIM CORPORATION**
11 Park Place
New York 7, N. Y.
for full information **Specify Brochure S-23**

Distributed in Canada by Levitt Safety, Ltd., Toronto

(For details, use Key # S-4 on card on page 1)



contaminants off **FAST!**

HAWS SAFETY SHOWERS send torrents of rushing water from all angles – washing away dangerous irritants in a hurry!

Slap open the conspicuous "Push to Operate" valve. Hard-running streams from 10 *adjustable* nozzles drench victims in seconds.

You can depend on HAWS for the instant, *positive* first aid so vital until medical help arrives.

This "Safety on tap" can mean the difference between temporary irritation and permanent injury. Get the facts! Write for HAWS new safety catalog. Do it today!

Valve shown three-quarters open.

HAWS DRENCH SHOWERS

a product of

HAWS DRINKING FAUCET COMPANY

1443 Fourth Street • Berkeley 10, California

Export Dept. 19 Columbus Avenue San Francisco 11, California, U.S.A.

(Use Key # S-3 on Inquiry Card on page 1)

CHECK LIST of aids to production

Through Safety—

Electrical Hard Hats 24
Reflective Road Marker 48
Versatile Signal Horn 48
Closed Circuit TV Camera 48
Barricade & Warning Flags 49
Transistor Megaphone 49
Speed Calibrator 49
Power Line Alarm for Cranes 49
Intercom System 50
3-Way Warning Barrier 50
Portable 2-Way Radio 50
Portable Megaphone 50
Rough Duty TV Camera 50
Railroad 2-Way Radio 51
New Burglar Alarm 51
Long Distance Flasher 52
Transistorized 2-Way Radio 52
Colored Floor Markers 52
Emergency Signaling Horn 52
Traffic Routing Marker 52
Transistorized Annunciator 53
Multi-Channel 2-Way Radio 53
New Warning Bells 53
High-Speed Flashers 54
Chest-Wear Voice Amplifier 54
Dielectric Hand Line 54
Reflector Flare Kit 54
New Wire Markers 54
Control Panel Annunciator 54
Fluorescent Equipment for Highway Crews 55
Illuminated Display Unit 55
Explosion-Proof Intercom System 55
Loudspeaker Telephones for Mines 55
High-Intensity Flasher 55
Emergency Light & Signal 56
Non-Conductive Flags 56
Air-Cooled Electrode Holder 61
Shatter-Proof Light Bulb 61
Universal Joint Clamp 62
Anti-Slip Floor Runner 62
Welders' Safety Clothing 62
Reflective Traffic Buttons 63
Sheets & Parts Lifter 63
Stack Muffler Guard 63
Safety Wheel Block 63
New Model Ear Guard 63
Disposable Plastic Gloves 64
Panoramic Rear View Mirror 64
Heat Resistant Face Shield 64
Electronic Control Guard 65
Lockout for Switch Boxes 65
Improved Tomahawk 65

Through Maintenance—

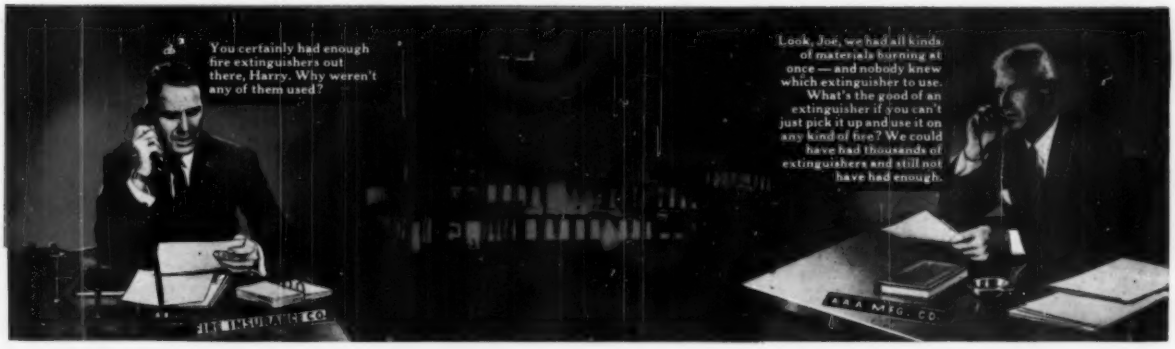
Abrasive Grit Coatings 13
Shatter-Proof Light Bulb 61
Spraying Equipment for Mixed Components 62
New Baseboard Scrubber 62
Fluorescent Lamp Guard 62
Modular Steel Floor Plate 62
Improved Roofing System 62
New Wall Cleaning Machine 64
Safer Cleaning Solvent 64

Through Industrial Hygiene—

Noise Meters & Analyzers 32
1st Aid Eye-Face Fountain 63
New Model Ear Guard 63
Portable Air Purifier 64
In-Plant Mobile Stretcher 64
Disposable Ear Plug 65
Compact Medicine Station 65

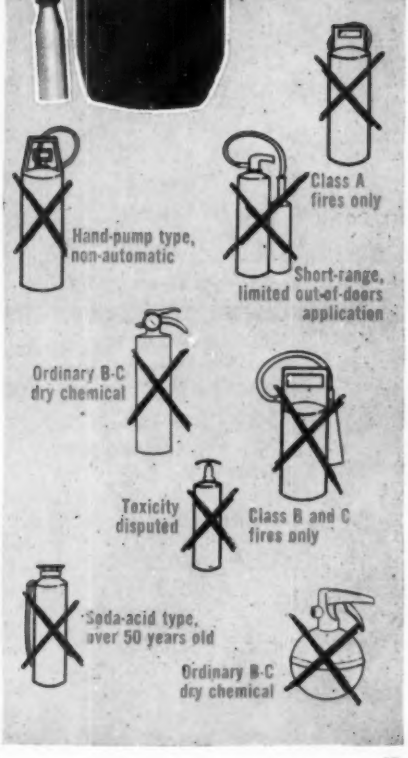
Through Fire Protection—

Lightning Protection Systems 41
Fire-Resistant Acoustical Tile 43
Portable Welding Screens 61
Line Tester for Sprinklers 61
Water Wetting Agent 63
New Extinguisher Bracket 63
New Extinguisher for All Fires 65


You certainly had enough fire extinguishers out there, Harry. Why weren't any of them used?
Look, Joe, we had all kinds of materials burning at once — and nobody knew which extinguisher to use. What's the good of an extinguisher if you can't just pick it up and use it on any kind of fire? We could have had thousands of extinguishers and still not have had enough.
AAA MFG. CO.

Will you be in Harry's spot one day? Don't risk it! Install...

ABC AllClass THE ONLY FIRE EXTINGUISHERS APPROVED BY UNDERWRITERS' LABORATORIES FOR ALL CLASSES OF FIRES: CLASS A, B, C and MAGNESIUM


Class A fires only
Hand-pump type, non-automatic
Short-range, limited out-of-doors application
Ordinary B-C dry chemical
Toxicity disputed
Class B and C fires only
Soda-acid type, over 50 years old
Ordinary B-C dry chemical

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Famous last words...

We have all the STONEHOUSE SAFETY SIGNS we need...

...but ONE!

Accidents are no laughing matter— stop them before they happen

NO SMOKING *Stonehouse* SIGNS

"Signs Since 1863"

Play it safe in your plant with accident-prevention signs. All Stonehouse Signs are made of enduring, tested materials and designed in accordance with American Standard Specifications. MAIL COUPON TODAY FOR FREE, FULL-COLOR, 64-PAGE CATALOG.

Stonehouse Signs, Inc.
Department 46
9th & Larimer Streets • Denver 4, Colorado

Send me your free 64-page catalog of Safety Signs and Tags.

Name _____

Title _____

Company _____

Address _____

City _____

State _____

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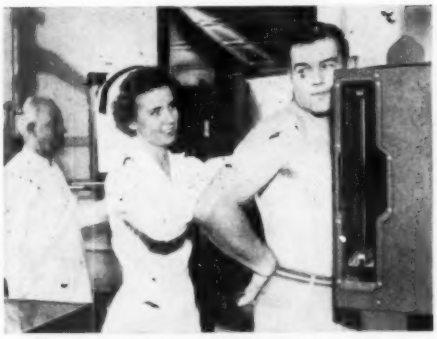


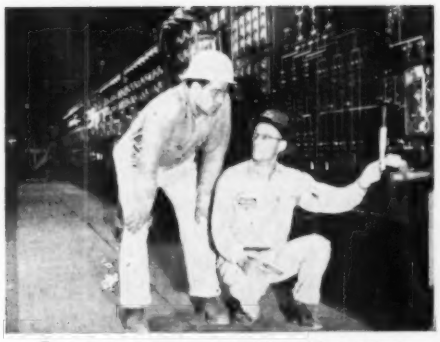
1 A prospective employee of a steel company gets pre-employment physical test.

2 Next, the employee receives plant and departmental orientation in job safety.

Good Safety Training Is No Accident

Iron and Steel Companies Give Employees a Safety Follow-Through

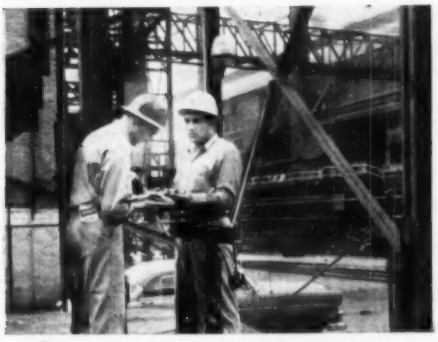
3 He obtains the special equipment that is needed to help keep him safe on job.



4 Safety training, considered by company to be very important, is next on schedule.

5 The employee attends safety sessions and taught approved first aid methods.

(Pictures by courtesy of American Iron & Steel Institute)



6 For protection of the employee, the supervisor checks on safety equipment.

7 Another safe day has been completed as result of thorough safety program.

How to Plan into New

The accompanying table outlines the trend of current well-informed opinion with respect to general industrial plant design standards. But where—and how—does the plant engineer make his contributions to insure the suitability of a tailor-made plant?

The opinions of the plant engineer must be formed largely on the basis of his day-to-day experience with the specific preventive and corrective maintenance problems encountered in his particular plant. He must then correlate this day-to-day experience with the firming-up of the new plant or expansion design.

After the new facility has been completed, the plant engineer will become, among other things, its custodian. Therefore the benefits of his experience with the maintenance problems peculiar to the particular production operation must be carefully considered in resolving the final design details. As a matter of fact, the principle involved might be termed the employment of pre-preventive maintenance.

Structurally speaking, an industrial plant building can be visualized as having six major component parts—foundations, framing, floors, exterior walls, roofing, and interior walls and partitions.

Foundation design is usually a question to be answered by outside specialists in soil mechanics, piling, caisson work, reinforced concrete design, etc., and in this component of the structure, in most cases, the plant engineer's experience has little or no bearing.

The design of the framing in most instances is likewise pretty much a job for specialists—usually those in structural steel or reinforced concrete design.

Flooring Problems

Floor design, however, is a field in which the plant engineer's experience and opinions can play a very important part. Most industrial-plant floors today are built with Portland-Cement concrete, utilizing this material both in the base slab itself and in the surface finish. Floors of this type are generally sturdy and, if designed with the proper additives, long-wearing. They are not impervious, however, to excessive heat, to the chemical effects of acids or to severe abrasion.

Now—when the floor areas for a new plant are being designed, the plant engineer's first-hand knowledge of the intricacies of the production processes and the specific maintenance problems that can arise in the various locations within

Trends in Plant Design and Construction

In 1959, Dun's Review and Modern Industry conducted a comprehensive survey of plant facilities which included planning techniques, design and layout, construction methods, and location. The survey covered 107 manufacturing concerns enjoying annual sales volumes in excess of one million dollars each and included 64 concerns with annual sales in excess of $100 million each. The sampling was well-balanced industry-wise, covering chemical producers, manufacturers of transportation equipment, producers of electrical and non-electrical equipment, food processors, primary metal processors, fabricated metal producers, and producers of stone, clay and glass products. Also included were rubber product manufacturers, paper producers, and manufacturers of textiles, apparel and furniture.

Here are some highlights of the results of the survey:

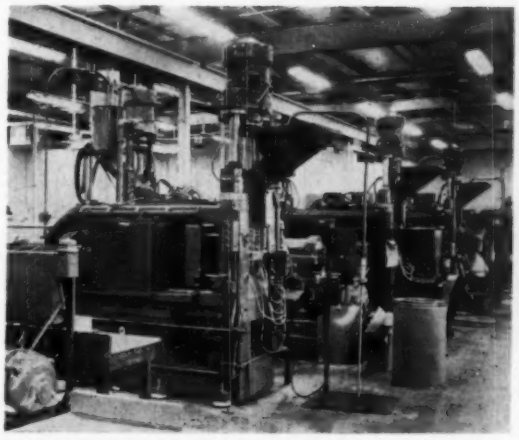
1. **The key features in plant design today are economical expansibility and flexibility. Keeping in mind five and ten year goals, management is putting down plants that can easily accommodate changes in volume or product mix—that is, large one-story plants located on sizable sites.**
2. **The introduction of automation calls for fewer people and more space for machines. Consequently, new plants require less area for employees' facilities and more space for control areas.**
3. **The average plant is changing in shape from the traditional square pattern to the long or frequently L-shaped structure. Ceiling heights (except for crane bays) are stabilizing at about fourteen feet while air conditioning is spreading steadily.**
4. **Plant bays are stabilizing at 30 feet by 60 feet. New windowless plants outnumber those with fenestration.**

(Continued on page 12)

PLANT MAINTENANCE SERIES
Other articles May & July

Maintenance Plants

by **CLIFFORD S. STRIKE,** President
F. H. McGraw & Co.
Hartford, Connecticut



the plant can be put to very valuable use. As an example, suppose that a particular area of a production-line floor is likely to be subjected to frequent acid spills, or perhaps to acid leakage. From long experience, the plant engineering department is well aware of this condition, and of its consequences. In such event, therefore, a floor topping of concrete made with calcium aluminate cement might be specified, since a surface finish of this kind is highly resistant to many acids. Alternatively, however, mastic block or acid-resistant brick flooring might prove to be more suitable for the area in question. The best solution to the problem can be reached only after careful consideration and study of the specific operating conditions, the maintenance problems involved, the properties of available construction materials, and the effectiveness of proven construction techniques.

Similarly, other portions of the floor area may be subject to exposure to excessive heat, to severe abrasive action, or to other unusual conditions, and in such cases the construction materials and methods should be specified in such a manner that maximum economically attainable useful life and infrequent low-cost maintenance will be afforded under the circumstances.

Economical Construction Methods

The use of non-load bearing curtain walls for interiors and exteriors is now a common practice. Cost comparisons will show that the curtain wall cost is less than masonry and that changeovers for expansion can be made cheaply by taking down and reassembling with new units. Curtain walls are prefabricated to offset the continual rise in field labor costs. Units produced in the shop rather than on the job, in our experience, have shown savings of about 40%. Not only is the need for field scaffolding avoided, but the big lever in this cost reduction comes from the mass production economies that can be achieved in a fabrication shop.

Prefabricating techniques should also be employed for repetitive framing on a modular pattern. Not only does this save time but greatly simplifies the cutting and joining of framing on the job site.

A construction method to be explored from a cost analysis standpoint is the use of tilt-up concrete wall panels for warehouse construction. When the use of such methods is palatable to the specific conditions, a saving is bound to result in reduced labor costs and completion time. In this same area is the use of precast concrete wall panels. Often they require no further finishing on the inside with plaster or insulating materials.

Another major area which bears examination deals with off-site fabricating that extends beyond the so-called building material portion of a plant. Off-site fabricating now relates to boilers, piping, panel wiring, motor controls and similar equipment and materials. This field offers the plant engineer not only potential equipment cost and installation savings but also a real opportunity to examine for equipment improvement, use and flexibility.

Versatile Equipment

We in the construction industry also keep abreast of the times through the use of lighter and more mobile construction equipment. This provides us with greater flexibility, and it cuts the construction period substantially. Winter work is no longer a problem with the use of plastic enclosures and unit heaters.

If one single statement relative to a plant engineer were to be made, it would stress the utmost importance of his being familiar with the properties of all the latest types of building materials and how they

affect and relate to the peculiarity of operation in his plant. It is equally important that plant management afford their plant engineers the opportunity of learning about these new materials.

In addition to materials and construction techniques and liaison, the plant engineer should have a great deal to say about what goes into the installation of the equipment and about other such important features as aisle spaces, mechanical equipment, material handling and so forth.

In my opinion, only through complete team work, including the plant engineering department working with a reliable proven industrial contractor, can a company achieve the successful goals to new plants or plant expansion which result in:

1. The best balance between fixed investment and operating costs.
2. Flexibility in equipment layout.
3. Fast integrated materials handling.
4. Low-cost maintenance.
5. Economical provisions for future expansion.

And 6—for time is money—an operationally efficient plant completed on schedule within the budget established.

From an address presented at the 11th Plant Maintenance & Engineering Conference. Pictures by courtesy of American Cyanamid Co., Allied Chemical Corp., and Fuller Brush Co.

Trends in Plant Design and Construction

(from page 10)

Aisle space is shrinking as less cumbersome maintenance methods are introduced. Concrete flooring with hardening additives is most common.

5. **For decorative purposes, asbestos shingle siding, metal sidings, and painted cement block have largely replaced brick, except for ornamental purposes.**
6. **Partitions of material other than masonry cut the cost of installing wiring, plumbing, and air vents. With hollow steel stud partitions, for example, these utilities can be enclosed in the wall at a very low cost. The partitions can be reused when space needs change. There is more usable floor space in relation to the over-all size of the building than in the past.**
7. **The use of new lightweight materials, such as aluminum and glass-fiber products, is increasing.**
8. **The use of pre-stressed, reinforced concrete and thin-shelled concrete makes it possible to eliminate columns and provide clear indoor spans.**

New Safety Campaign

"Safety Everywhere. . . . All The Time" is the theme of a new campaign initiated by Allis-Chalmers to keep its people safe around the clock.

Based on the idea that all accident prevention activities are inter-related, the program is being carried to company plants, sales offices and employees' homes through a sound movie, posters, banners, handouts, and houseorgans.

Symbol for the campaign is an adaptation of the yellow highway diamond with a black bullseye.

Starting with the over-all theme in February, some specific phase of the program is being featured each month. In March, the subject was "Safety, A Family Effort"; April, "Housekeeping"; May, "Falls—At Home and At Work"; June, "Vacation Safety"; July, "Water Safety"; August, "Hand Tools"; September, "Traffic Safety," etc.

Handouts in connection with these monthly promotions include lapel buttons with the yellow diamond symbol, scoreboards for the home with a jot-it-down pad, pocket savers, key rings, car door hangers, etc.

This marks the third successive year that Allis-Chalmers has conducted a specialized safety campaign. During this time the number of disabling injuries at the firm's largest works at West Allis was reduced from 201 in 1957 to 91 in 1959. This represents a drop from 6.4 to 3.6 in frequency rate.

The over-all safety approach was determined upon because statistics show that off-the-job accidents have resulted in more than twice as many disabling injuries as at work.

The Future Shows

Bridgeport, Conn. *June 6–7*

Fifteenth Annual Statewide Conference of the Connecticut Safety Society (University of Bridgeport). William W. White, Publicity Director, Connecticut Safety Society, 855 Burnsford Ave., Bridgeport, Conn.

Raleigh, N. C. *September 14–17*

Second Annual Southeastern Maintenance and Engineering Show & Conference (State Fair Arena). Robert E. Zimmerman, Manager, John Harden Associates, P. O. Box 3173, Greensboro, N. C.

Chicago, Ill. *October 17–21*

Forty-Eighth Annual National Safety Congress and Exhibit (Conrad Hilton, Pick-Congress, Sheraton Towers, Morrison, and La Salle Hotels). R. L. Forney, Secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Pittsburgh, Pa. *October 26–27*

Twenty-Fifth Annual Meeting of the Industrial Hygiene Foundation (Mellon Institute). Dr. H. H. Schrenk, Managing Director, Industrial Hygiene Foundation, 440 Fifth Ave., Pittsburgh 13, Pa.

Chicago, Ill. *Jan. 30–Feb. 2*

Twelfth National Plant Maintenance & Engineering Show and Conference (International Theatre). Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

Water on the floor emphasized need for a non-slip surface wash-up area. Now the floor is skidproof even when it is wet.

Assistant superintendent and maintenance employee check instructions before applying non-skid surface to area.

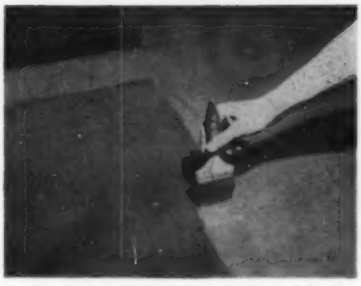
FOUR STEPS TO SURE FOOTING

First Step in resurfacing work involves cleaning wash-up area thoroughly, putting on initial coat of bonding compound.

Second Step in this operation is concerned with the sprinkling of abrasive particles from kit for skidproof surface.

Third Step in the process is to sweep off excess grit, after the abrasive particles have dried into the bonding compound.

Fourth Step and phase is the application of second compound coat. Surface permits light traffic in six, heavy in 16 hrs.



Have you ever seen an accident waiting to happen?

Frank Rucinski has. He's assistant superintendent at The Caslon Press, Inc., in Pittsburgh. Caslon's accident possibility—or hazard—was a 150-square-foot "wash-up" area in the firm's second floor press room.

The area includes a drinking fountain, sink, and a wash basin. Each working day, 48 men employ this area several times for drinking, hand washing, and for washing out sponges and rags. These materials are used to clean the commercial job printer's letter and offset presses.

Frequent Water Splashing

A considerable amount of water is often splashed onto this lone section of concrete flooring, and before it can be mopped water is splashed on the floor again.

The problem was that the concrete was smooth and, when wet, slippery underfoot. Although there had been no falls, Rucinski and others at Caslon Press were concerned about the potentially hazardous condition. They began a search for a non-skid surfacing material to resist possible slip effects of leather-soled footwear on the wet floor.

Answer to the problem came quicker than anyone anticipated. And, there was no search for a material that would prove "just right." The answer came right off the press—in the form of a bulletin being printed for the manufacturer of a new bonding resin impregnated with grit. The grit particles provide the non-skid surface.

A two-quart kit was all that was needed to do the job. The area around the fountain, sink, and basin was cleaned and bonding compound applied. Next, abrasive particles from a package were sprinkled on lightly. After an hour's drying time, excess grit was swept off and a second coat of bonding mix applied. The surface cured to permit light traffic in six hours and heavy traffic in 16 hours.

"Better Wearing Quality"

Rucinski said the material was easy to apply—"just as easy as paint and it has better wearing quality."

Commenting on favorable reaction to the non-skid surface by press room personnel, Rucinski said, "I can appreciate it too. I used to slip out there (on the smooth, wet concrete floor) myself!"

Pictures by courtesy of Mine Safety Appliances Co.

How to Plan for Unexpected Disasters

Here is how the Norton Company of Worcester, Mass., coped with an unexpected natural disaster and what it learned in planning for emergencies.

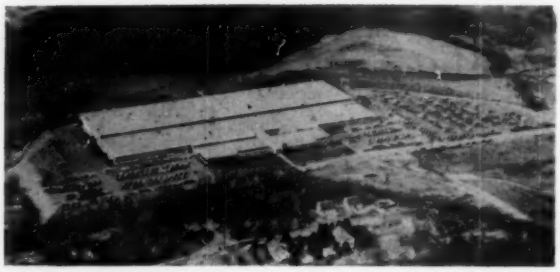


Fig. 1. Aerial view of the Norton Company's grinding machine plant prior to the arrival of the tornado June 9, 1953.

by **FRANCIS J. BURGOYNE**
Chief Layout & Construction Engineer
Norton Company
Worcester, Mass.

Tornadoes are reported more and more every year, and the increase is due not to atomic bomb tests but because the weather bureau has simply been getting a more complete count of the tornadoes actually occurring. In any event, we have come to realize that these violent storms are much more frequent and widespread than used to be thought. In the year 1957, nearly 1,000 tornadoes were reported with loss of life to almost 200 people and damage estimated at 75 million dollars.

While they may occur at any place in the country, they are most common in the midwest and occur mostly in the late spring or early summer, usually in the later afternoon.

What exactly is a tornado? It may be recognized by the funnel shaped cloud with a twisting spout extending to the ground. The vortex or lower part of the spout forms a low pressure area and whirling winds which suck up buildings are often as high as 200 miles per hour. Prime conditions for tornadoes are hot, sticky days, winds from the south, overcast sky, and thundercloud formations. The extreme damage done is caused by the differences in pressure and the high velocity winds in the cone.

In June of 1953, Central Massachusetts, a normally tornado-free area, was struck by the devastating force

Fig. 2. Another aerial view of the Norton plant which shows some of the extensive damage wrought by tornado's passage.

THE DESTRUCTION

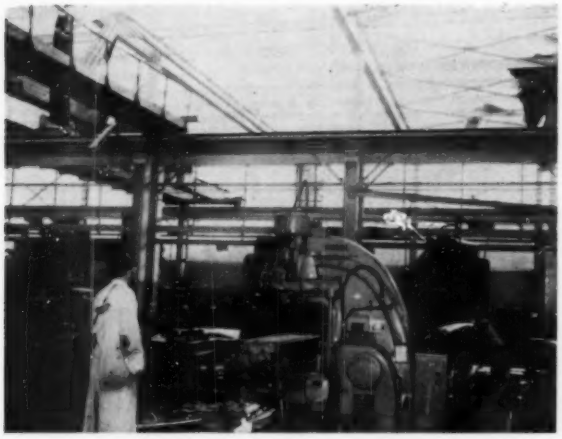


Fig. 3. Results of tornado's visit are apparent in this view of the factory interior which was taken right after disaster.

Fig. 4. This picture shows the interior of the cafeteria on the morning following storm's blasting of the Norton plant.

Fig. 5. General view of the destruction from the parking area with wrecked cafeteria, right, just after the storm.

Fig. 6. From this photo an over-all picture can be gained of the extent and nature of the damage caused by the twister.

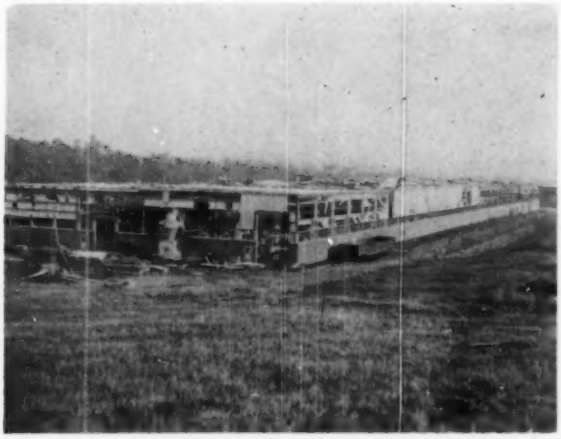


Fig. 7. Rear view of machine tool plant taken immediately after the storm. Tornado swept right to left through plant.

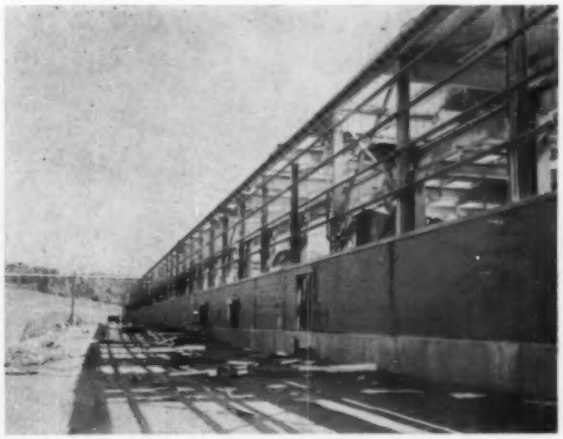


Fig. 8. A closer view of the rear of the plant is provided here. Details of the effects of the storm in this area can be noted.

THE CLEAN-UP

Fig. 9. Above picture gives the appearance of the interior of the plant's pattern shop on morning after storm had passed.

Fig. 10. Norton heavy equipment such as tractors, bulldozers and trucks were given emergency duty to clear streets.

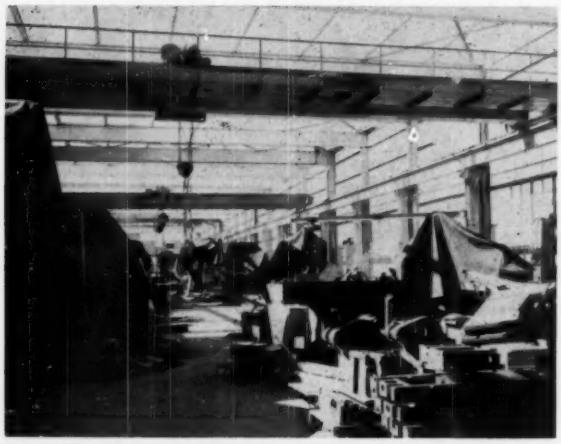


Fig. 11. Here's a morning-after scene, with the machines covered to keep out the rain. Hanging debris has been cut away.

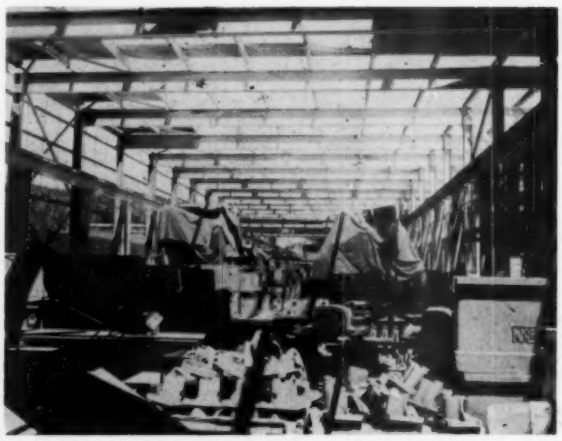


Fig. 12. Southwest corner of the plant where the storm has removed roof. Machine tools are covered by tarpaulins.

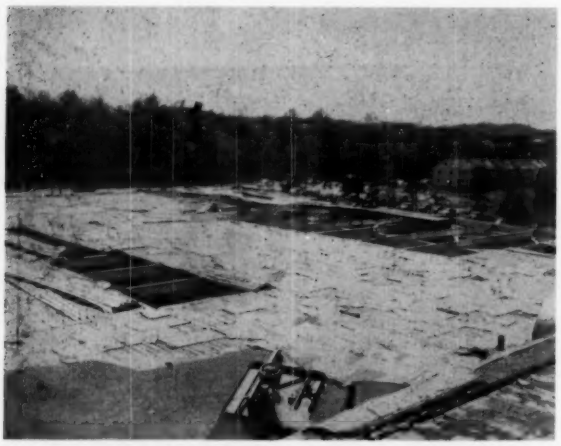


Fig. 13. Typical roof destruction at machine tool plant. Roof consists of insulated steel decking covered by tar and gravel.

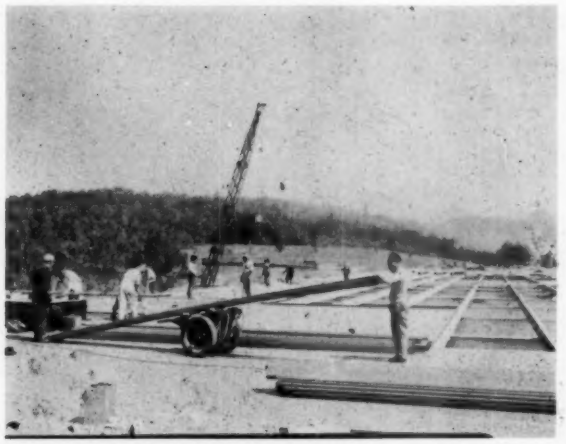


Fig. 14. Reconstruction of roof, bringing in new steel decking. In the background is smoke from burning debris from homes.

How to Plan for Unexpected Disasters

(Continued from page 14)

of a tornado which left behind it a path of destruction 20 miles long and ⅛ to ¼ mile wide. Passing through residential towns and industrial areas, it left 10,000 people homeless, killed 94, injured hundreds, and left 60 million dollars worth of damage in its wake.

In Worcester, Massachusetts, among the industrial plants badly hit was the Norton Company's new Machine Division Plant which had been opened for manufacture of grinding machines only two months before. Portions of the main Abrasive Plants were also severly damaged. Many of the surrounding residential areas that were heavily hit were also heavily populated by Norton employees. Thus, in a few brief minutes, important sections of our plant were immobilized and many of our employees were killed, injured, or made homeless.

Each person touched by the devastation had a different story to tell about its arrival. Those in the plant were completely unaware of the big blow and failed to realize what was upon them until the roof over their heads disappeared or the wall behind them collapsed. Fortunately, even this proved to be sufficient warning for them to dive for cover. Other people, caught on the roads, had their cars hurled great distances or blown completely over. Many saw their homes and families carried away. Needless to say, any who were able to relate their personal experiences later felt most fortunate.

Our Grinding Machine Plant, a one story building 300 feet wide by 700 feet long with an office building and cafeteria attached, is of extremely heavy steel frame construction, with brick walls above which runs a band of windows and heavy asbestos cement siding. The roof consists of a ribbed steel roof deck covered with one inch fiberglass insulation and a four ply tar and gravel surface. Fourteen bridge cranes service the plant and all plant utilities are overhead. (Figure 1)

Upon viewing the plant within fifteen minutes of

HELP FOR EMPLOYEES

Fig. 15. This is a picture of one of the areas in neighborhood of the plant which suffered the greatest amount of damage.

Fig. 16. Norton Company provided free storage for personal property of employees whose homes were badly damaged.

Fig. 17. Company trucks and equipment were made available so homes damaged by storm could be made weather tight.

Fig. 18. Government-owned trailers solved the temporary housing problem for many of the people affected by the storm.

the time the tornado passed, a most depressing sight met the eye. The steel roof deck was more than half torn off and scattered throughout the area. (Figure 2) Fluorescent lights hung by one support, swaying in the air. Ruptured sprinkler pipes poured water into the plant. The injured, already being treated, had been laid out on the office floor, bleeding and groaning. The whole interior of the plant and office was plastered with a mixture of wind borne mud, fiberglass, and tar and gravel from our roof. (Figure 3) Sheets of roof deck hung down dangerously. (Figure 4) Outside, all the cars in our parking lot were smashed up, piled on each other—some carried several hundred feet by the force of the wind—gasoline covered the entire area. (Figures 5 & 6) Our fences and parking lot light standards had disappeared and a railroad car was blown over on its side.

Emergency Measures

A disaster of this magnitude can not be handled as a whole—it becomes too staggering—so, we tackled "first things first."

For example:

A) The injured, fortunately only eight in number, were removed and treated at our hospital. This work could be done effectively because it is part of our standard plan of operation to have a plant hospital open whenever men are at work.

B) Hazards of live 13,000 volt main lines, 440 volt distribution systems, gas and sprinklers were dealt with by our maintenance people within minutes.

C) The danger of fires was minimized by the presence of our fire department, both regular firemen and volunteers, supplied with hose and extinguishers. They later patrolled the fire lines which were drawn because of the hazard from the gasoline.

D) Communications—because of overhead telephone service, all telephones in the plant were knocked out and portable field telephones and two-way truck radios were used to maintain service to our main switchboard. An appeal was made over the local radio stations to all service and maintenance people, and shortly after, they started to appear, even some with damaged homes.

E) Sightseers, showing up as usual, proved to be more more than our guard force could handle and volunteer guards were assigned to help here.

F) Cleaning trees and debris from the roads leading to the plant was underway within an hour. This allowed for access in and out, reducing the fire hazard and assisting workers in getting to the job. (Figure 10)

G) Machine protection—as soon as work crews could be mustered, they were assigned to protect the expensive machine tools, electrical equipment and parts by cleaning, slushing and covering. Up to this time, they had been exposed to the weather and reports had been received that wind with heavy rain was returning. (Figures 11 & 12)

From this point on, our project—while still a 24 hour a day job—became a routine one of cleanup and rebuilding, and the problems then became ones of procurement, expediting, and delivery.

While an excellent job was done by all, we were forced to borrow equipment, set up stop-gap organizations to handle emergency situations as they came up, and, in general, deal with the situation on a "spur of the moment" basis.

EMERGENCY PLANNING

Here are some of the lessons that we learned from a disaster like this which could affect any plant:

I. Organization—As is the case with any job, the basic problem is deciding **what** has to be done and **who** is going to do it. You seldom get more than a few minutes warning of a tornado. It is too late when the storm warnings are up to decide which people are going to do which jobs.

To nail down assignments, make an emergency organization chart now. Keep it simple and distribute it widely throughout your plant. Have one man in charge of each function with alternates for supervision from different geographical areas. Delegate authority to enough people so there will be no delays. There will be a lot of decisions, some costly and far reaching, so spell out the extra authority delegated to plant operating people and supervisors during emergencies.

II. Communications—The best thing to do is tie in with the Weather Bureau's tornado warning service. This will provide an alert when general conditions are of the type to spawn tornadoes.

Maintain liaison with the local Civil Defense, get to know the Civil Defense people, let them know you. Size up the job that Civil Defense is likely to do and decide to what extent you can rely on them.

Provide for two-way radio communication at your plant. This, we found, was a must when plant telephones were knocked out and materials and men were vitally needed.

III. Mutual Aid Program—Where possible, develop a central pool plan for equipment and materials with other companies in your area. This will minimize the amount of special equipment that any one company will be required to keep on hand and will set up a pool of skilled men ready on call to work efficiently on the restoring of plant services.

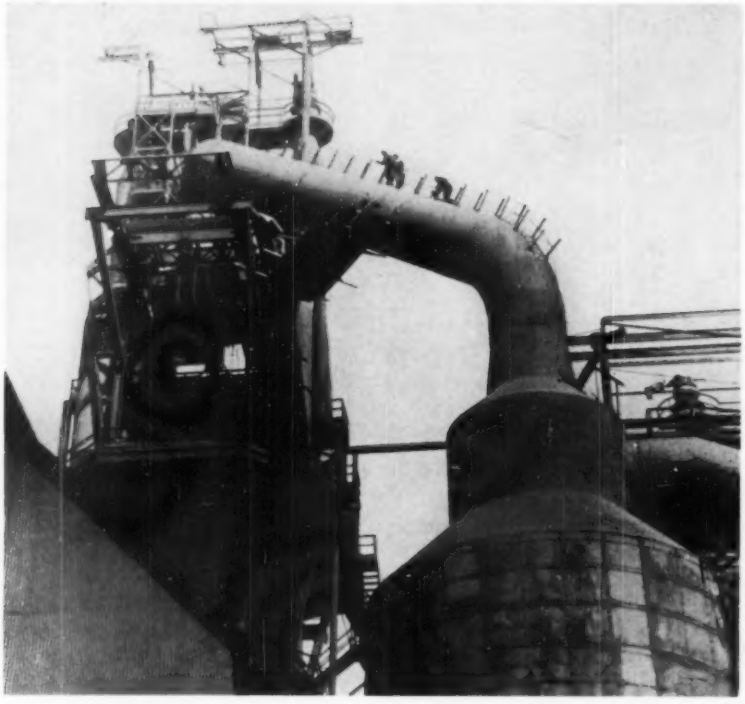
IV. Emergency Equipment—We now have several emergency trailers strategically placed throughout the plant area. These trailers are fully equipped with rescue and first aid equipment, and are to be used only for disasters such as flood, fire, tornado, or explosions where persons are injured, trapped, or in hazardous situations. They are used only under the direction of supervisory personnel and are kept locked with keys available through the plant guards.

The equipment is inspected every six months and necessary replacements are ordered by the Equipment Engineer. The trailers are mobile and can be moved by towing with regular ball type trailer hitches installed on smaller yard vehicles or as found on many passenger cars. Either the Yard Department, tele-

(Continued on page 47)

Safety Maintenance SALUTES

A SAFETY IDEA



First, Purge . . . Then Repair

The hazard of a serious explosion during welding repair of combustible-gas vessels is being removed by a growing industrial technique—carbon dioxide purging. For example: When an 8-foot-diameter downcomer pipe at Chicago's South Works of United States Steel Corporation needed the repair of a crack recently, engineers purged the container with 48,000 pounds of carbon dioxide and left an "inert atmosphere." The repair was completed safely in about six hours.

The downcomer removes blast furnace gas, which is about 27 percent carbon monoxide, for use in other parts of the mill as combustible gas. During the recent operation, CO_2 was introduced in the downcomer to displace carbon monoxide at the point of repair.

Carbon dioxide is used to purge natural gas lines and coke oven gas pipes, said H. V. Williamson, director of research for the Cardox Division of Chemetron Corporation. He pointed out that purging with other materials, such as steam, does not always cause the remaining gas in containers to become inert, and often causes condensate to run out of cracks and breaks that welders are trying to repair.

"Steam may condense and actually draw air into the system, creating an explosive atmosphere before the operation is finished," he said.

He points out four advantages of carbon dioxide for inerting and purging:

1. It is low in cost and is easily obtainable anywhere in the United States. Because it can be handled in bulk quantities, labor is reduced to a minimum.

2. Carbon dioxide is relatively heavy, having a molecular weight of 44 compared to 29 for air. This makes it easy to displace air and most common gases from below.

3. Concentrations of CO_2 can easily be determined with simple equipment. This is an important advantage from a safety standpoint as compared to the use of, for example, nitrogen, concentrations of which can be determined only by indirect methods.

4. Carbon dioxide is relatively non-toxic and is not condensible under conditions of use.

Williamson said physical damage to the piping or system, which can be caused by contraction of metal parts upon cooling, is eliminated with the use of carbon dioxide in vapor form. The use of vapor also makes it possible to control the operation with greater accuracy. A simple orifice and pressure gauge can be used to control the rate of application.

He said the minimum amount of carbon dioxide needed for a job is based on the volume of the container to be purged. The formula calls for not less than one pound of CO_2 for each 8 cubic feet of volume. Many purging operations would require two to three times this amount because of leakage, unusual container design, or inefficient displacement, he said.

The picture shows workers welding the downcomer at Chicago's South Works. The vessel, which removes highly combustible gas from the plant's No. 11 blast furnace at left, was purged with 48,000 pounds of carbon dioxide to prevent explosion during welding operation.

Staff College Course In Industry Defense

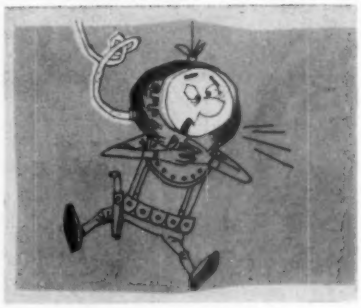
Because of the demand for this type of training, three more Staff College Courses in Industry Defense and Mobilization have been scheduled for 1960 at the OCDM National Operational Headquarters in Battle Creek, Michigan. The dates for these courses are June 6–10; August 22–26; and November 14–18, 1960.

The courses are sponsored by the OCDM Industry Office which is re-

(Continued on page 22)

Each year industry spends thousands of dollars for the replacement of industrial hose, largely because of improper care and/or misuse. The accompanying story highlights some of the more common ways hose is damaged in industrial applications.

Guaranteed



1

WOULD YOU:

Beat or cut a hose to unclog it?

Run steam through a hose designed to carry water?

Bend a hose back and forth repeatedly to loosen it and make it more flexible?

Maybe you wouldn't, but apparently some people in industry do, according to Dayton Industrial Products Company, a division of the Dayco Corporation, manufacturer of industrial hose and fittings.

A recent study of the nature and causes of industrial hose replacements, indicates that such antics are responsible for at least 60 percent of these premature hose failures, according to Jack Quamme, the company's industrial hose product manager.

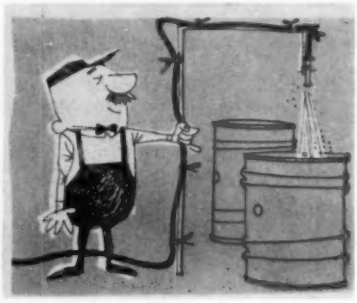
Plain Carelessness

The cause—obviously—is plain carelessness. And combatting carelessness is a difficult chore. But rather than give stern lectures and issue dire warnings, Dayton Industrial has taken the opposite approach and is producing an easy-to-follow booklet called "8 Ways To Kill (Or Keep) Your Industrial Hose"—here summarized because of its general interest.

Quality Has Improved

Mr. Quamme said today's quality industrial hose is far superior to the so-called quality hose produced a few years ago. "Carefully engineered and tested, today's hose is designed to take rough handling," he said. "But they aren't designed to withstand excessive neglect and take abuse."

"Perhaps," Mr. Quamme says, "by pointing out how easy it is to damage hose through carelessness, we'll help reduce the human errors that cost industry thousands of dollars a year, and we'll help users get longer life and more for their hose dollar."



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3

8 WAYS TO KILL (or KEEP) INDUSTRIAL HOSE

4

For 8 Guaranteed Ways to Give Your Hose Longer Life —See page 22

Ways to Kill Your Hose

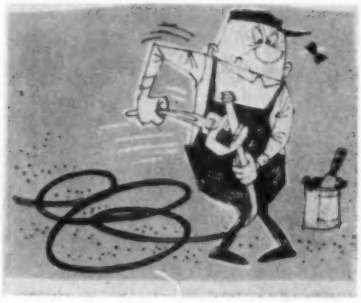
If you want your industrial hose to die before its time, follow these simple directions:

1—SELECT THE WRONG HOSE FOR THE JOB—This way you won't have to use it very long because chances are it—or you—won't last long.

5

5—DRAG THE HOSE EVERYWHERE. Don't bother to help it over rough surfaces and sharp rocks. Glass, dirt and grime . . . these will really put your hose in shape.

2—BEND THE HOSE SHARPLY TO MAKE IT LOOSE. This does a lot to destroy the reinforcement member and makes the hose easier to handle. Bending it at right angles will help too. Don't let leaks and blow-outs rattle you, because you can always buy more hose.



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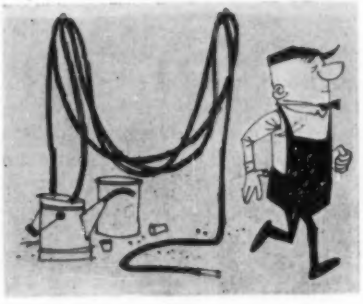
6—STICK THE FREE ENDS IN DIRT TO STOP THE FLOW, and forget to check and clean the fittings. It'll help if you douse the couplings in oil and grease. It's not necessary to wash them in soap and water as the manufacturer recommends. (Not much, it isn't.)

3—YANK AND JERK THE HOSE, especially if it's hung up on a piece of machinery or is kinked. You can flatten it by driving over it, too. This will certainly make it more pliable, and may make it air conditioned.

7

7—DON'T CLEAN THE HOSE after it's been used. If it gets clogged, insert sticks and sharp objects inside to clean out the debris. If the hose protests, beat it with a sledge hammer. This is guaranteed to loosen up the clogged areas.

4—EXCEED THE RECOMMENDED WORKING PRESSURE. Sure, you can always push more through the hose this way. (But look out!)



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8—STORAGE IS NO REAL PROBLEM, just leave it. Don't bother about reels or racks, or the sun, acid or the elements. Hang it on a nail or hook. These are sure to grab into the hose and hold it firmly.

Give your industrial hose this treatment, and you can expect one thing: reduced performance and short life.

8 GUARANTEED WAYS TO GIVE YOUR HOSE LONGER LIFE

If you want your industrial hose to last longer and if you want to get your money's worth out of your hose, follow these simple directions.

1. SELECT THE RIGHT HOSE FOR THE JOB—There's a safe, economical, long-lasting hose designed for practically every special industrial use, and it pays to pick the right hose for the job. Take into consideration what material the hose will carry, the working pressure, plus the external conditions the hose will be exposed to.

2. DON'T BEND OR WRENCH YOUR HOSE. It has been designed with reinforcement members to give it added strength and long life. Constant bending, twisting, stretching ruins the reinforcement and causes hose to leak and blowout.

3. DON'T YANK OR JERK THE HOSE, or bend it at right angles to the fittings. Scientifically designed, the hose has been developed to take abuse, but chances are it won't stand up very long under excessively rough treatment.

4. NEVER EXCEED THE WORKING PRESSURE. If you do—you'll be inviting disaster. This not only shortens the life of the hose but it also destroys the safety factor built into the product. You're stretching your luck if you push more through the hose than it's designed for.

5. AVOID DRAGGING THE HOSE OVER ROUGH OBJECTS, even though you know the cover has been designed to withstand abrasion and external abuse. By helping preserve the exterior, you help preserve the interior, and your hose will last longer.

6. KEEP FREE ENDS CLEAN AND OUT OF SAND AND DIRT. It's a good idea to get into the habit of regularly checking the fittings for dirt and grime. It's a good idea to clean your dirty couplings regularly with warm water and soap. NEVER apply oil or grease to couplings.

7. CLEAN AND DRAIN HOSES AFTER USING. This might seem a waste of time, but it isn't. It'll help prevent deterioration of the hose tube and will help keep the hose unclogged and ready for immediate use.

8. STORE YOUR HOSE PROPERLY. You'd be surprised how many hose users just let hose lie after it's been used. This is wrong. Always store your hose in a cool, dry place out of the sunlight and away from acid fumes or oil. Hang your hose on reels or racks, not on nails or hooks. Coil it and place it on a flat surface. It'll last longer . . . and be out of the way.

By exercising reasonable care, you can greatly increase the life of the hose and be more assured of getting the performance designed into it.

Industry Defense

(from page 19)

sponsible for providing encouragement, information and technical guidance to business, commerce and industry on methods of preparing for survival and continuity of production following enemy attack or other major disaster.

This course will provide industrial executives and government officials with practical information and training in practices and procedures for protection from nuclear attack and major peacetime disaster in industrial plants, institutions and office buildings. Thus it will help industrial firms achieve a greater measure of security through survival planning, and thereby give greater assurance of national survival.

The course is open to all who have responsibility for emergency and disaster control panning in industrial plants, institutions and other large buildings and facilities. They include industry defense coordinators, personnel directors, safety directors, training directors, security supervisors, plant protection officers, State and city industrial defense coordinators, and others who have related responsibilities.

Arrangements can be made for special workshops or evening discussions by groups having interest in special industry defense subjects. The initiative for organizing these groups will come from students. Appropriate specialists and technicians will be available to advise and participate in the discussions.

Instruction is provided by lecture, demonstration, panel presentation and discussion, workshop, case studies, project sessions and group discussions—supported by visual aids and extensive working material. Exercises based on simulated attack and major disaster conditions are set up and students play an appropriate role in meeting and solving problems. Heavy emphasis is laid on relating discussions and examples to individual problems. Small project groups choose and discuss particular questions of broad interest brought in by students. In some sessions students are called on to solve company disaster control and industry defense problems taken from actual experiences.

All students who properly participate in all classwork and satisfactorily complete assignments made by instructors will be awarded a certificate of completion.

There is no charge for tuition. Modern, well-appointed, comfortable rooms are available in the OCDM buildings, and are available at $1.50 per day, per person. Residence in these rooms is limited to students who are registered for this Staff College Course. Accommodations are also available at reasonable rates at nearby hotels.

Enrollment in each class will be limited to 100 students, therefore applicants will be accepted and enrolled in classes in the order of the receipt of their applications. Any number of persons from a single company may enroll as long as vacancies exist. Companies may enroll a given number of individuals,

then supply the names at a later date if necessary. Upon receipt of written request a place in the course will be reserved for industrial executives and government officials who require time to obtain authorization.

Participants are urged to register on Sunday preceding the course from 3:00 p.m. until 10:00 p.m. in the OCDM lobby. Classes begin at 8:30 a.m. and continue to 5:00 p.m., and end at noon on Friday.

Other information may be obtained from your local or state civil defense director, or from the Industry Office, Office of Civil and Defense Mobilization, Battle Creek, Michigan.

Housekeeping In the Chemical Industry

Publication of SG-2, "Housekeeping in the Chemical Industry," as the second pamphlet in its Safety Guide series is announced by the Manufacturing Chemists' Association.

The four-page illustrated publication covers the responsibility for good industrial "housekeeping" and the benefits derived from it. It describes in detail how this desirable practice can be established and maintained.

The first publication in the series, SG-1—Health Factors in the Safe Handling of Chemicals—was issued in January.

Publication of the Safety Guide series is another activity of the MCA's General Safety Committee. S. F. Spence of American Cyanamid Company is general chairman and J. S. Queener of E. I. du Pont de Nemours & Co. is publications chairman.

Guides now being prepared include such topics as electrical switch lockouts, tank entry, instrumentation for safety, emergency organization and preventive maintenance. The MCA, through its committee, publishes a series of Safety Data Sheets also.

Copies of SD-2 are available at 20 cents each from the Association, 1825 Connecticut Ave., N.W., Washington 9, D. C.

only 8¼" HIGH!

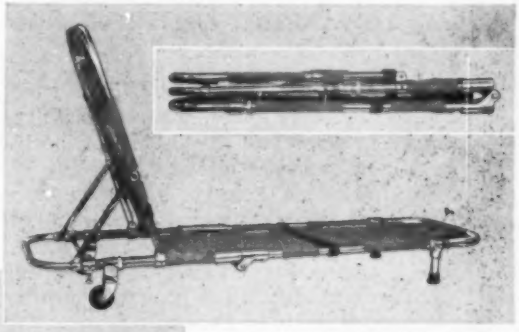
NEW

Washington Ambulance COT!!

Now you can get an ambulance cot that is REALLY LOW — only 8¼ inches high — the perfect answer for cars that have less head room, and for overhanging stretchers. The new Washington model 21-L is of special value for heart cases, and other patients who must be kept in a sitting position. Washington's famous top-quality craftsmanship is apparent throughout this new model cot with such features as sturdy, rigid construction . . . highly polished aluminum tubing and castings . . . very lightweight yet strong . . . trigger release side rails . . . adjustable back rest with nine-position squeeze-lock adjustment. It always pays to choose Washington for the newest and best in all emergency room or vehicle requirements.

ADJUSTABLE-BACK EMERGENCY STRETCHER MODEL 9AB

Four adjustable positions on back rest, folds to only 4½ inches high! One of Washington's complete line of folding emergency stretchers for every need, in every price range.



NEW PUSH-TYPE COT FASTENER MODEL 3A

This new and improved cot fastener holds cots securely in station wagons and other types of emergency vehicles. Washington makes four other models of cot fasteners, to meet every need for any kind of vehicle. Tell us the make and model of your vehicle, and we'll recommend suitable fasteners.

See your jobber or write for FREE catalog!

Washington Products Co.

WASHINGTON COURT HOUSE, OHIO

(For details, use Key # S-6 on card on page 1)

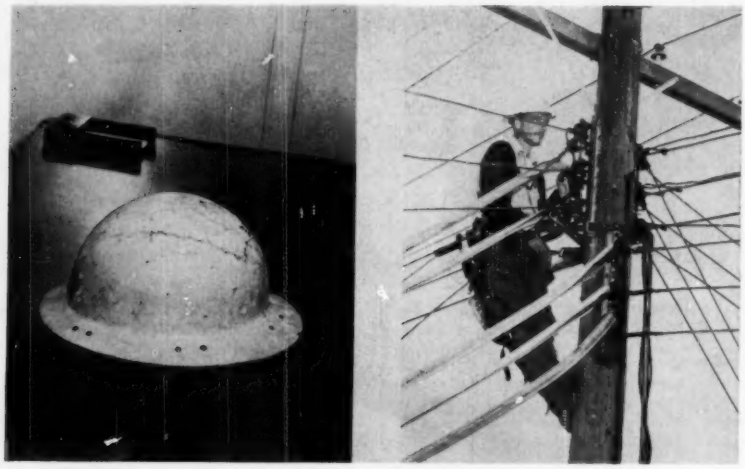
New Safety Engineering Society Organized

With John J. Long, Safety Director at Pittsburgh Plate Glass Company's Works #7, as chairman, the Western Maryland Safety Engineering Society recently was organized to serve the entire western section of that state.

Vice-Chairman is B. R. Lewis, Safety Superintendent of Hercules Powder Company, Alleghany Ballistics Laboratory. Henry Johnson, Supervisor of Safety and Plant Protection at Celanese Fibers Company, was elected Secretary-Treasurer.

The new safety engineering group is dedicated to the promotion of accident prevention, health and fire protection in community industrial establishments. Also, the members are pledged to encourage and support area safety efforts.

Another Injury Checked



This burned hat saved this man's life!

He is Harold J. Miller, lineman first class in Metropolitan Edison Company's Glen Rock District in York County, Pennsylvania. The hat is an electrical safety helmet made of thermoplastic copolymer material —designed to withstand 15,000 volts of electricity.

Lineman Miller was wearing the safety helmet—which features a maximum allowable leakage of 8 milliamperes—while on emergency duty during a severe rainstorm. A broken 4,800-volt insulator pin tilted onto a burned crossarm and pole, flashing to an adjoining phase and creating a greater flash. This spilled over Lineman Miller's safety hat, leaving him with only a hot head, sunburn and flashburn of both eyes that responded easily to medical treatment.

Picture by courtesy of Mine Safety Appliances Co.

Maintenance Show for Southeastern States

The second annual maintenance and engineering show, serving the Southeastern states, will be held in Raleigh, N. C. in the State Fair Arena September 14–17. In conjunction, the Industrial Experimental Program at N. C. State College will again stage a series of maintenance and engineering seminars.

The North Carolina chapters of the American Institute of Plant Engineers, sponsors of last year's first show and seminar, are again sponsoring the show and are joined this year by the Maintenance Council of the North Carolina Motor Carriers Association and the Carolina section of the American Welding Society.

The show and seminars will offer a dual program that will be of broad interest to all sections of industry and commerce. The exposition will be known this year as the Southeastern Show, and the seminars will attract enrollment under the names: Plant Engineering and Maintenance Seminar (for building and plant maintenance engineers); Fleet and Maintenance Seminar (for shop and maintenance management in the motor carrier field); and Welding and Maintenance Seminar (for persons interested in the welding area).

The seminars are expected to enroll more than 1,000 representatives of industry and commerce in the Southeastern states, and the show expects to have an attendance of more than 10,000. Admission to the exposition will be free but restricted to the trade on all days but one, when the general public will be invited to inspect the array of maintenance and engineering equipment that will be assembled in the Arena.

Last year's show drew more than 3,000 attendees from 19 states, and last year's seminar, one of the best attended engineering conferences held in the southeast, enrolled 400 maintenance engineers. The 1959 seminar was directed by J. R. Ogburn, a member of the staff of the Industrial Experimental Program of the State College School of Engineering. Mr. Ogburn will be in charge of the multiple seminars planned for 1960, to accommodate a spreading interest in the fields of maintenance engineering. The show will again be produced by John Harden Associates of Greensboro, with Robert E. Zimmerman serving as manager for the second year.

Product Show

Several acres of exhibit space in the Arena and adjoining State Fair buildings will house the displays of more than 300 companies planning to exhibit, demonstrating thousands of services and products under simulated operation conditions. Objectives of the simultaneous exposition and seminars are to gather together, and share with participants and attendees, information and experience in methods, tools, and equipment necessary for a quality maintenance job. They will embrace such areas of interest as training personnel, good housekeeping, safety and economy in total performance, etc. Mr. Ogburn said: "The seminars and exposition will afford a proper atmosphere and opportunity for the exchange and expansion of ideas which will advance our industrial technology."

In addition to the seminar sessions, where technical papers of general interest will be presented, discussion sessions are planned to follow. In these, industrial leaders will consider problems peculiar to their own plants and operations. Over twenty top-level national authorities in these fields of interest will be principal speakers on the seminar programs.

SM GOES TO — the 30th New York Safety Convention

At 11 A.M. on March 28th workmen from the Manhattan Borough President's Office removed the blue-and-white "Times Square" sign on the 43rd Street mall between Broadway and Seventh Avenue and replaced it with one reading "Safety Square."

The change was a reminder to New Yorkers and visitors that the week of March 28th was "Greater Safety Week" so proclaimed by Mayor Robert F. Wagner. Both the sign change and the Mayor's proclamation were also intended as a welcome to the more than 8,000 safety experts and accident prevention workers from many parts of the nation who were attending New York's 30th Annual Safety Convention and Exposition. The five-day event at the Statler Hilton Hotel was held under the auspices of the Greater New York Safety Council with the aid of 68 official cooperating agencies.

During the five days of sixty sessions covering almost all fields of accident reduction and prevention, addresses were made and panels led by more than 200 educators, safety engineers, law enforcement officials, insurance investigators and industry leaders.

Starting on March 29th, America's multi-million dollar safety industry put on a display of its latest inventions and developments which range all the way from special protective suits for rocket flights into space to a portable up-to-date model of the old outhouse for use on construction jobs.

Along with the newest devices were displayed firefighting equipment, machine guards, protective clothing, psychological testing devices, safety education and incentive award systems, mine safety gadgets, warning devices for contaminants ranging from noxious gas to radioactive detection, and the hundreds of other products intended to minimize the possibility of accident in almost every field of human activity.

The Air Force pressure suit, designed to protect man during higher and faster flight than he has ever made, is actually a complex of several suits to enable the body to adapt to a variety of adverse conditions. The low atmospheric pressure of such flights makes it unable for the lungs and blood stream to absorb and use oxygen normally. The suit makes it possible to force oxygen into the lungs under pressure and applies pressure to the body surface in such a way as to prevent body heat from "boiling away" the oxygen from the blood stream.

A wide range of blinkers, traffic signals and other visual and oral warnings of possible danger included the biggest and brightest barricade flasher on the market. It was evident that safety shoes, hard hats, gloves, sleeves and aprons and entire protective suits and dresses are getting further away from their original grotesque sizes and shapes than ever before.

Although there wasn't a non-slip banana peel, there were many kinds of non-skid floor surfacing and non-slippable, non-tippable ladders. Other displays ranged from rescue breathing equipment to smokers' disposal cans with special designs for factory and reception room use.

Following are highlights from some of the addresses given by the safety experts at the general and special-subject sessions.

Safety Programs

The nation's largest fabricator of copper and brass had until a few

years ago the worst accident record in that industry. How the situation was changed and accidents reduced, with consequent savings in production costs, was detailed by George W. O'Neil, employee communications and safety administrator of the American Brass Company. He said that when he was put into that post his problem was how to revive a moribund safety program.

"Over a period of years, at least up until 1956, the company ranked with the worst in the business," he said. "The Copper and Brass Research Association comparative frequency figures regularly ranked our plants largely on the bottom."

Mr. O'Neil said that top management and plant management thought all the while they had an effective safety program. He said that while management "took great pride in their productive facilities, quality, service and general business reputation, it was necessary to alert them to their dubious distinction as about the worst safety performers in the brass mill industry."

Mr. O'Neil then drew up for top management analyses showing a wide disparity in accident and compensation costs for three divisions, where other conditions were similar, located within 30 miles of one another. He said this brought a new awareness among top management, which was immediately translated into action all the way down the line, with a substantial reduction in accidents and costs.

The "grass roots" safety program of one of the nation's greatest industrial organizations was described by John V. Grimaldi, safety and plant protection consultant to the General Electric Company.

"At General Elecrtic," said Mr. Grimaldi, "there is no corporate directive policy with respect to safety. This is in keeping with the accepted management principle of decentralizing authority, responsibility and accountability to the levels where decisions are made.

"Safety is, as it should be, a staff function—and people in this position, therefore, are limited to the right to look at any area and discuss it with any person. They have no authority to order or direct, but should carry out their responsibilities by persuasion and counseling, relying on the authority of fact well marshalled rather than the power of command.

"Mandatory courses of safety action are adopted from time to time by department and division general managers, but these are known as department or division instructions. The issuance of such instructions is to some degree a function of the authoritativeness of the safety knowledge which management is asked to consider."

Mr. Grimaldi described General Electric's "Test Safety Manual" as "an authorative collection of accident control information" pertinent to the company's electrical testing operations.

Congress was criticized for having made stevedore companies rather than shipping companies responsible for providing "a safe place to work" for cargo loaders and unloaders. The criticism was voiced at the convention, by T. R. Alff, safety director of the Nacirema Operating Company.

Mr. Alff cited a list of shipboard conditions that endanger stevedores. Among these conditions, which he said the ship's officers should correct before making port, were broken steps on hatch ladders, greasy wire rope, padeyes left welded to the deck after having served their purpose, worn or missing beam locks, and "escape hatches which can not be used to escape, due to being blocked with cargo."

A major drawback to safety, Mr. Alff said, was "the mates' reluctance to correct any of these promptly." He also referred to ships' officers who "feel safety is costly and it coddles longshoremen."

"To these seemingly insurmountable problems," he said, "has been added one more, and an Act of Congress was necessary to give up this one—the Safety Code. The code in itself presents no problem; most of its requirements are commonly accepted safe practices and have been in use in the industry many years.

"However, the law stipulates the employer—the stevedore—must provide a safe place to work. This places the stevedore in the unenviable position of policing the operator since he has no physical control over the work area. Are we all fully aware of the problems this poses?

"In what other line of endeavor does the seller police the buyer? Let us ponder this for a moment. How long do you think your wives would continue to patronize a store that required her to conform to certain conditions before she could make a purchase? How many of you would continue purchasing from your present sources of supply if similar conditions were imposed?

"The slogan 'The customer is right' has, in our industry, been reversed by Act of Congress. We earnestly solicit your help in making the code available to your ships' officers. Requiring them to rigidly observe its provisions will alleviate and eventually eliminate our role as policemen."

Accident Stoppers

Twelve percent of the occupational injuries in American industry consist of sprains and strains, the convention was told by Rudy Pellmar, plant manager of the Electrical Fittings Corporation, of Woodside, Queens. He said most of these injuries resulted from improper lifting or from attempts to lift too heavy loads.

Addressing the material-handling session, Mr. Pellmar said the U. S. Department of Labor set 50 pounds for men and 25 pounds for women as the maximum weights workers can safely lift and carry in compact form in continuous and repetitive operations. But many workers strain themselves with lighter loads through improper lifting and carrying techniques.

"If you hear anyone in your plant say 'oh my aching back!', take him

seriously," said Mr. Pellmar. "Your material handling is showing."

Mr. Pellmar said wider use of mechanized equipment for lifting and carrying materials would eliminate many such accidents and, at the same time, save in labor costs several times the cost of such equipment.

Mr. Pellmar said studies by the Electric Industrial Truck Association showed that if only manpower is used for such operations the cost is approximately $10 per horsepower, but if electric equipment is used the operational cost is four cents per horsepower.

"And this is only a cold, statistical comparison of the cost of the effort," he said. "When you consider the hidden costs of manpower fatigue, morale, and material handling injuries, this ratio becomes even greater."

Industries and organizations which use gas masks primarily for emergencies were reminded that the proper storage of such devices was as important as their proper use. S. J. Pearce, chief of the United States Bureau of Mines' branch of health research, said that a gas mask was no good if you couldn't get it quickly when you needed it. And its unavailability, he said, might be because it's too near the scene rather than too far from it. Mr. Pearce said:

"It is advisable to store gas masks intended primarily for emergency use just outside the area where a gas emergency might occur. We know of instances where sudden bursts of gas have occurred and all the gas masks were in the gased area and thus were inaccessible. What might have been a minor mishap thus became a serious matter because the situation worsened while other gas masks were being obtained."

Mr. Pearce cautioned industrialists against substituting use of gas masks for good engineering practices. He said that processes giving off gases should be engineered so as to eliminate noxious fumes or reduce them to a minimum rather than to rely on gas masks. Where masks are necessary in certain industries, he said, workers should remain in such areas only for periods well within the limit of the individual mask's and canister's ability to keep dangerous fumes out of the wearer's respiratory system.

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The factory worker who keeps his nose to the grinding wheel is relatively safe from harm so long as his nose doesn't come too close and the wheel has been mounted properly.

"Grinding is a safe occupation," said G. R. Blake, products safety engineer of the Norton Company, of Worcester, Mass. in a paper on grinding wheel safety read at the shipbuilding and ship repair yard session. "Experience records show that grinding is one of the safest operations in the field of stock removal. The hundreds of thousands of grinding wheels in daily use with only an occasional accidental breakage present a remarkable record of safety."

The largest single cause of grinding wheel accidents is failure to mount the wheel properly in the grinding machine. Mr. Blake said

that improper mounting, causing internal strains in the wheel body, was the cause of about one-third of all reported wheel failures. Other causes include defective wheels, failure to use safety guards, and running the wheel at excessive speeds.

Mr. Blake said the man who uses the wheel should inspect each wheel just before he uses it to be sure it has not been damaged in transportation or in storage in the shop.

"A 'ring test' should be used whenever possible to detect cracks which are not visible," he said. "A sound wheel will give a clear mechanical pitch if properly tapped with a non-metallic implement. A wooden screwdriver or hammer handle may be used.

"If the machine operator and his supervisor are educated in the safety rules which must be observed concerning inspection of wheel, safe speeds, safe mounting procedure, and safe operating technique, breakages will be reduced almost to the vanishing point.

"Even these occasional breakages can do no damage," he declared, "if suitable guards are used. These rare breakages should be carefully investigated to correct any possible causes."

How nuclear power is used for ship propulsion with a maximum of safety was described by Joseph A. Gorman, safety engineer of the New York Shipbuilding Corporation.

"With regard to our newest exposure in common due to the use of nuclear power for propulsion, it is apparent this phase has been scientifically studied and engineered to the utmost to avoid any possibility of accident. This operation, from the time of shipment of fuel for the N. S. Savannah to New York Shipbuilding, is being controlled by the very strictest of provisions.

"So stringent are these measures that separate cars containing the fuel are so loaded that it would be impossible to assemble a critical mass. In addition, once in the Plant, a detector unit is to be connected to the cars and tied into our fire alarm system. The containment vessel of the N. S. Savannah itself is so engineered that it will contain what has been calculated to be the maximum credible accident.

"Twelve remote radiation detectors as monitors will continuously report to the Reactor Control Center. All rescue operations will be controlled from this center by operators who have received extensive training and whose instructors are specific. Similar instructions will be printed and posted aboard the Savannah.

"It has been said that the design of the nuclear plant aboard the N. S. Savannah will provide a degree of containment which is unexcelled by any power reactor in existence."

"I only stubbed my toe. Unfortunately I was on a scaffold at the time."

Greater use of automation for certain tasks can reduce the nation's industrial accident toll, according to Winthrop E. Warburton who related how Consolidated Edison Company of New York has reduced disabling injuries by 90 percent and accidents of all kinds by 59 percent in the ten years since it introduced mechanized equipment for materials handling in its purchasing and stores department. Mr. Warburton is staff assistant to the company's stores bureau.

"Just ten years ago," said Mr. Warburton, "we started a program to determine whether the general talk about automation machinery had a significant basis as a means of handling, transporting and storing materials."

Mr. Warburton said a study showed there would be savings in labor costs, with the elimination of more than 75 percent of the manual handling which in many cases had involved double and triple handling, and better utilization of storage space. In addition to these economies, he said, there was indicated the likelihood of accident reduction through elimination of hazardous manual operations.

"Today," he said, "we have modernized twelve warehouses and some thirty floors, and in addition several outdoor storage areas. In operation daily are some 800 pieces of modern equipment including fork-lift trucks, cranes, hydraulic and special trucks, automatic dump hoppers, dockboards, levelators, roller dollies and other special pieces of equipment.

"The cost of this equipment, including pallet racks, shelving and revolving bins, comes to $1,495,000.

Mr. Warburton said the changeover was an economic gain, since the mechanization made possible the handling of a 48 percent increase in materials with "a considerable decrease in manpower."

"At this point," he said, "it would be appropriate to analyze our safety record to determine whether or not automation has resulted in more or fewer accidents.

"Going back nearly ten years to 1951, we find a total of 1,272,000 man-hours worked with eleven disabling accidents, 71 accidents of all types, resulting in 201 man days lost. We have since experienced a steady decline in the number of accidents. Last year we had only one disabling accident, 27 of all kinds, and only 15 days lost time."

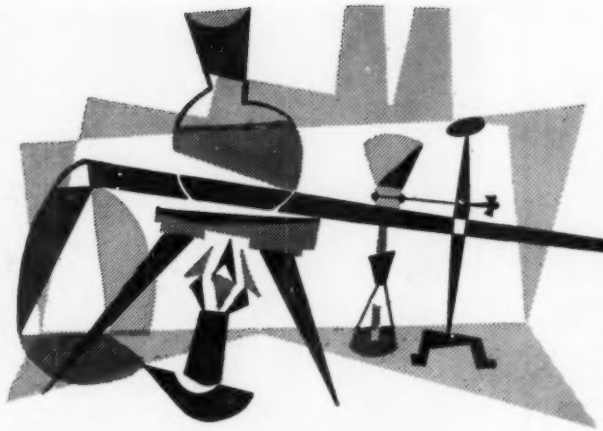
Safety Training

"A great many accidents may be caused before the new employee even goes to work." In these words, an industrial relations expert stressed the importance of accident prevention at an early stage. Charles J. Rienzo, general industrial relations assistant in charge of workmen's compensation and safety for Revere Copper & Brass Inc., of Rome, N. Y., told a convention session that the seeds of many accidents lay in hiring employees who lacked the proper attitudes toward safety.

Another cause, he said, lay in inadequate instruction and indoctrination in safety procedures on the part of the foreman before assigning the new employee to his tasks.

(Continued on page 35)

Air Pollution Research



industrial hygiene

Industrial Health Conference

More than 3,000 industrial physicians, dentists, nurses, and hygienists recently attended in Rochester, N. Y., the 1960 national Industrial Health Conference. At the week-long meeting, industrial health experts and medical directors of leading U. S. companies and governmental organizations heard reports on a broad spectrum of medical subjects.

Scientific papers and panel discussions were scheduled on heart disease in industry, cancer detection, mental health, radiation safeguards, industrial dentistry, industrial nursing, air pollution, and toxicology of various substances important to the public and to industry.

General conference chairman was Herbert T. Walworth, director of industrial hygiene for the Lumberman's Mutual Casualty Company of Chicago. Considerable emphasis was placed on ways to improve preventive medical services provided by industry and on progress in control of occupational health hazards.

Arthur A. Fleming, Secretary of Health, Education, and Welfare, was the main speaker at the annual banquet of the Industrial Medical Association, one of the five participating organizations in the conference. The other groups are the American Association of Industrial Nurses, Inc., American Industrial Hygiene Association, American Association of Industrial Dentists, and the American Conference of Governmental Industrial Hygienists. Their memberships were joined by other representatives of industrial management, labor, and others concerned with industrial health.

The Sappington Memorial Lecture of the Industrial Medical Association was given by Dr. William Shepard, medical director of the Metropolitan Life Insurance Company.

The 1st Memorial Lecture of the American Association of Industrial Nurses was presented by Jane Weaver, R.N., a nursing executive of the Liberty Mutual Insurance Company.

Legal aspects of medical science received attention in several sessions of the conference. These included a demonstration of the role of the industrial nurse at a typical Workmen's Compensation hearing; a mock trial of a hypothetical case of heart disease in Workmen's Compensation with leading physicians and attorneys for plaintiff and defendant; and a session considering radiation injury and worker compensation.

Dr. Robert B. Nemeroff, president-elect of the American Association of Industrial Dentists, presided at a meeting on communication and the exchange of scientific information. The important role of the nation's press in presenting news of medical and dental progress and ways to improve communication among professional groups was among subjects explored.

Directors of state and local industrial hygiene programs also met with staff members of the Occupational Health Program of the U.S. Public Health Service. This meeting was under the auspices of the American Conference of Governmental Industrial Hygienists.

Scientific exhibits in the War Memorial and near the headquarters of each conference organization supplemented the technical reports and discussions at the meetings.

A program of tours for the conference delegates and their wives took the visitors to the radiation therapy and other units of the Atomic Energy Commission's installation at the University of Rochester; to the glass plant of Bausch & Lomb Optical Co.; production areas of Delco and Rochester Products divisions of General Motors; to Eastman Kodak Company plants, to Gleason Works, and to Stromberg Carlson Division of General Dynamics.

Atomic Physics Division at NBS

The National Bureau of Standards has established a new scientific division—Atomic Physics. Dr. Lewis M. Branscomb has been appointed chief of the new division.

Atomic Physics was created by partitioning the Atomic and Radiation Physics Division. The other half of the old division will be renamed the Radiation Physics Division, and L. S. Taylor will continue as its chief.

Major areas of research in the new division include precise determination of atomic constants and other physical properties associated with free electrons, atoms, ions, and molecules; quantitative studies of the microscopic, mutual interactions ions, atoms, molecules, and their constituent particles; and studies of the solid state, particularly of semiconductors.

Air Pollution Research

Experiments being carried out by General Electric meteorologists at the Hanford atomic plant are expected to help scientists in other parts of the country solve smog problems. The General Electric meteorologists recently began a research program to determine air patterns which prevail at night, particularly when temperature inversions take place.

To aid in finding best conditions for releasing gaseous wastes which may contain slight amounts of radioactive materials, the Hanford scientists will determine the dispersion characteristics of inversions. Dr. Glenn Hilst, manager of atmospheric physics for the Hanford laboratories, explains that dispersion of gaseous wastes is most difficult during inversions which occur most frequently at night. Normally the warmest air in our atmospheric sea is located at ground level.

"When a temperature inversion occurs," Dr. Hilst said, "air is warmest at some point above ground level, thus forming a barrier between upper and lower air masses. Smoke or other airborne wastes cannot rise above this barrier to be scattered and diluted in the upper atmosphere."

In the experiments being conducted at Hanford, 800 air samplers to detect test materials will be distributed over a 16-mile radius around the plant's 410-foot meteorological tower. Non-radioactive test materials will be released to the air near the tower and occasionally from different levels on the tower.

Samples of air will be taken at ground level as well as at various heights on portable towers at some of the 800 sampling stations. Although the amount of radioactive material emitted from the Hanford exhaust stacks is carefully controlled, Hanford's weather men are eager to find out more about how air currents deposit airborne material on the ground under all possible conditions.

While the Hanford study is designed specifically for Hanford conditions, Dr. Hilst said, results will be applicable to other areas where wind conditions are similar.

Four New Hygiene Guides

The American Industrial Hygiene Association announces the publication of four new additions to the Hygienic Guide Series: Magnesium, Nitroglycerin, Metal Hydrides and Molybdenum. This brings the total published Hygienic Guides to ninety-two.

The pattern followed in the new guides is the same as in all previous subjects, containing sections on Hygienic Standards, Properties, Industrial Hygiene Practice, Specific Procedures and References. Each section contains the latest authentic information available, e.g., the guides on Nitroglycerin points out that most dynamite now involves the use of ethylene dinitrate glycol as an additive to the nitroglycerin, and that vapor exposure to the mixture is primarily due to the ethylene glycol with its higher vapor pressure.

Further details about the Guides can be obtained from: George D. Clayton, Executive Secretary, American Industrial Hygiene Association, 14125 Prevost, Detroit 27, Mich.

ARE INDUSTRIAL CARCINOGENS

(cancer-causing agents)

ON THE INCREASE?

Industry, with its constantly increasing production of new compounds and chemicals, runs the risk of exposing workers and consumers to new and unknown cancer-causing agents. New products and methods of production should be carefully studied in order to guard workers against such harmful exposure. Skin is involved in 75 percent of cases; bladder in 15 percent; and lung, bone, paranasal sinuses, and larynx in 10 percent.[1] Usually, an exposure period of many years occurs before development of cancer.[2]

REFERENCES: (1) Fraser, T. M. et al.: Ohio M. J. 55:1217 (Sept.) 1959. (2) Lienoff, H. D.: New York J. Med. 59:1842 (May 1) 1959.

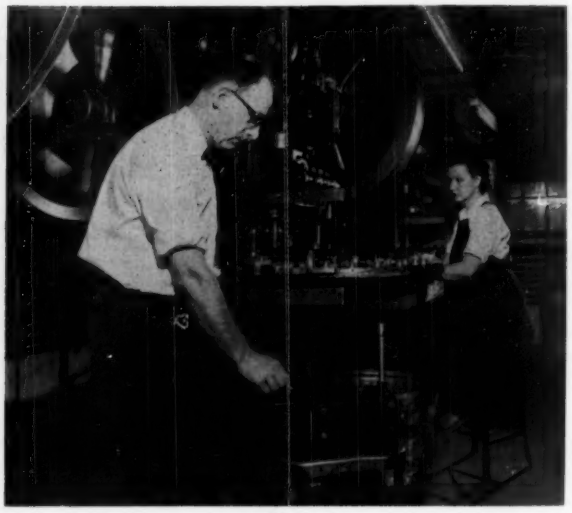
From "Patterns of Disease," a publication of Parke, Davis & Co. Picture by courtesy of Bausch & Lomb Optical Co.

Recognized and Suspected Occupational Carcinogens

Causative Substances or Conditions	Organ or System Affected	As Cause of Cancer Suspected	As Cause of Cancer Established
Aniline and derivatives	Bladder, ureter, kidney	✓	
Anthracene, crude	Skin		✓
Aromatic organic chemicals	Liver	✓	
Arsenic	Skin, eyelids		✓
	Liver, respiratory system	✓	
Asbestos	Respiratory system	✓	
Asphalt, artificial	Skin, eye		✓
Benzidine and derivatives	Bladder, ureter, kidney	✓	
Benzol	Blood-forming organs		✓
Benzol derivatives	Blood-forming organs	✓	
Burns, thermic	Skin		✓
Chlorinated hydrocarbons	Liver	✓	
Chromates	Respiratory system		✓
Coal	Skin	✓	
Creosote	Skin, lip, eye		✓
Crude paraffin	Skin		✓
Estrogens	Breast (male)	✓	
Frostbite	Skin	✓	
Heat, radiant	Skin	✓	
Iron dust	Lung	✓	
Irritation, chronic	Skin	✓	
Mineral oil, crude	Skin, eye		✓
	Lip,respiratory system	✓	
Naphthylamine-alpha	Bladder, ureter, kidney	✓	
Naphthylamine-beta	Bladder, ureter, kidney		✓
Nickel Carbonyl	Respiratory tract	✓	
Pitch	Skin, eye		✓
	Lip, bladder	✓	
Radioactive substances	Skin, lungs, blood-forming organs, bones		✓
Roentgen rays	Skin, blood-forming organs, subepithelial connective tissue, eye		✓
Shale oil	Skin	✓	
Sodium nitrate, crude	Skin		✓
Soot	Skin, bladder	✓	
Spindle oils, aromatic	Skin		✓
Tar	Lip, skin, eye		✓
	Respiratory system, bladder, blood-forming organs	✓	
Trauma, chemical	Skin	✓	
Trauma, physical	Skin, blood-forming organs, mesenchymatous tissues, eye	✓	
Ultraviolet rays	Skin, eye		✓

(From "Industrial Medicine")

THE db



Analysis of short-duration impact noises requires specialized instrumentation. Shown is a sound-level meter which picks up and amplifies the impact noise of the punch press and then passes it on to the impact-noise analyzer for measurement. This analyzer indicates both the level and duration of impact noises. From this data, accurate analysis can be made, and corrective measures taken where neceassry.

Picture by courtesy of Frank B. Lothrop Co.

Actually the db detectives in the accompanying pictures are looking for more than just unnecessary decibels (or sound pressure levels), they are also measuring sound frequencies (or pitch) and mechanical vibrations. Technically, these noise sleuths are measuring and analyzing the complicated patterns of sound generated by industrial equipment.

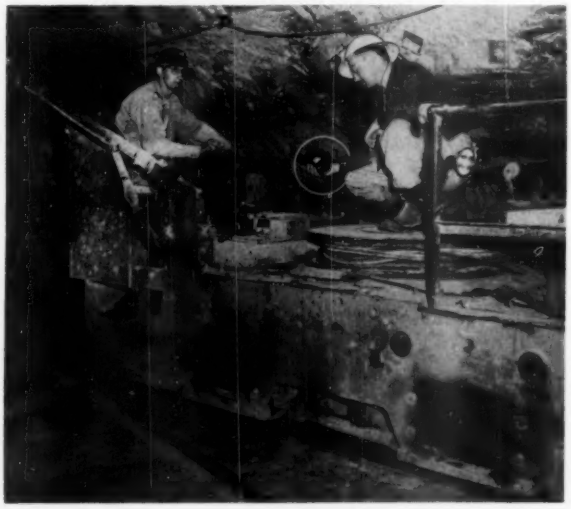
But the measurement of noise is more than just a technical matter. Translated into terms that indicate the influence of these sounds on human beings, these technicians are detecting noise elements that interfere with speech communication, that endanger hearing, that create an annoyance, that indicate vibrations which are excessive or are created by malfunctioning machinery. Additional areas for noise surveys include the enforcement of local noise codes, investigation of building sites, and checking acoustical treatments and other noise controlling arrangements and devices.

In tracing down their elusive quarry, these noise detectives utilize some extremely versatile sound measuring and analyzing instruments. The compact, pocket-size survey meter, for example, has many industrial applications, such as hearing risk surveys, measurement of machinery and vehicle noise, testing of public address systems, the noise reduction of products, etc.

The larger and more accurate sound-level meter can be used for the same purposes but gives more sensitive readings in general industrial surveys. With accessory devices, the sound-level meter can be adapted to definitive frequency analysis, vibration measurement and to remote pickup of noise at its source through microphones.

While the sound-survey meter and the sound-level meter give readings of the general noise level and some indication of the frequencies involved, more precise analysis of the noise's components may be necessary in areas of potential damage to hearing. To define the frequencies clearly, various types of analyzing instruments are available and may be used according to the types of noises encountered.

Noises may be roughly divided into three classes. The first includes **"pitched"** noises whose frequency components are harmonically related. This type is encountered in most kinds of rotating or reciprocating machines. Fundamentally the frequencies and harmonics will vary with the speed of the machine.



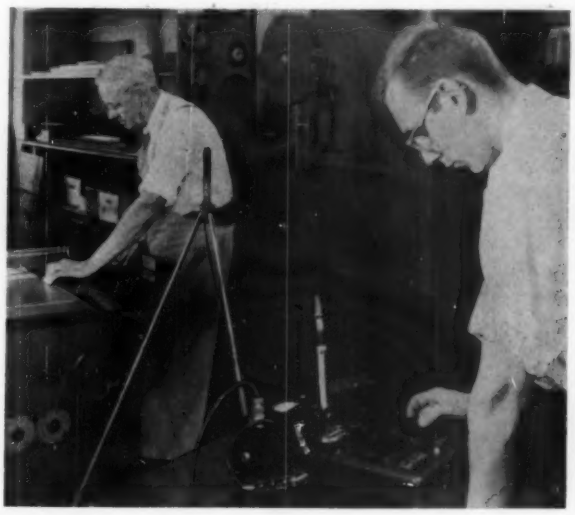
The small and lightweight sound-survey meter is shown being used to determine the noise level of machinery in a typical mine. When an overall survey of noise is desired at many widely separated locations, a pocket-size instrument like this is convenient. Mine safety directors have found that surveys of this type can be extremely useful in determining whether the noise level is too high, and whether steps should be taken to reduce it.

DETECTIVES

The sound from many high-speed rotating machines, such as centrifuges, electrical generators, and turbines, are almost entirely in this class. Pitched noises are best measured by narrow band analyzers.

The second class includes **"unpitched"** sounds, such as rattles, buzzes, and roars. Since the noise components are not definitely related to the number of teeth in a gear, fundamental speed, or other mechanical characteristic, the individual frequenices are seldom clearly defined. Instead, their energies are generally spread over broad frequency bands, and the frequencies continually shift from the effects of shock, damping, and movements of various parts. Wide-band analyzers are used to measure unpitched sounds,

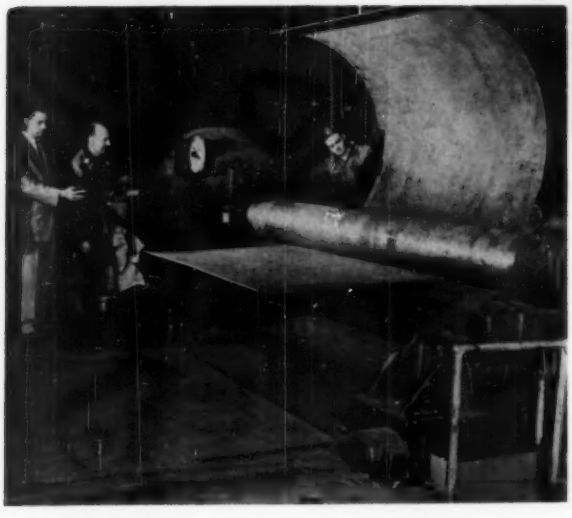
(Continued on the next page)

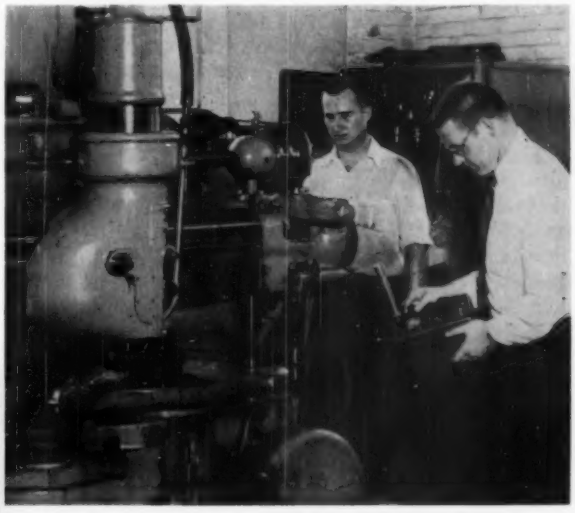


At the General Radio Company's Experimental Shop, this sound-level meter is being used with a condenser microphone assembly to measure the noise level of a high-speed saw. The condenser-microphone assembly is useful for measuring sounds in the upper-audible range, and can also be used to extend the meter's sound-level range upward.

Just how noisy is a boiler factory? Well, the Mobil Testing Laboratory of Detroit decided to find out. Measurements of the actual noise level taken with a sound-level meter during a cold-rolling operation indicated that the sound level in a modern boiler factory is no higher than that of an accounting office or of conversational speech at three feet! The secret of success is to confine the noisy operations to areas that are closed off by walls and ceilings covered with sound-absorbing materials.

Picture by courtesy of Mobil Testing Laboratory.

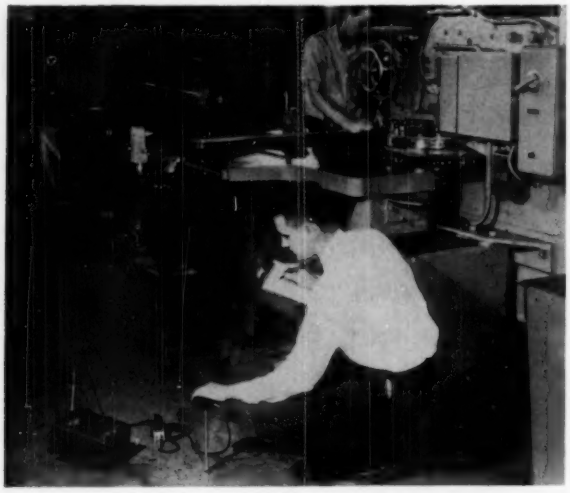




In many factory and machine shop areas, the rattle and clatter of machinery can be harassing and harmful to the operators. At Blanchard Machine Company, a sound-level meter is employed by an engineer to make certain that machine operations are at a safe, low-noise level.

Picture by courtesy of Blanchard Machine Company.

NOISE CONTROL SERIES
Other articles July & August



Heavy machinery produces not only unwanted noise, but vibration as well. Here an engineer is determining the vibration transmitted through the floor of a machine shop, using a vibration pickup and control box in conjunction with the sound-level meter. The transmission of vibration and noise through a floor or other medium may cause unwanted effects in seemingly remote areas of a plant. Careful analysis enables determination of solutions to problems of this nature.

Sounds and vibrations often do not occur with equal intensity over the range of the audible-frequency spectrum. Apparatus, such as the air compressor pictured, will produce sound or vibration components of varying intensities in separate frequency bands over the audio range. Shown are a vibration meter with pickup (attached by means of a magnet to the compressor) and a sound and vibration analyzer. This analyzer enables measurements to be made in "one-third" octave bandwidths or "narrow" bandwidths over the frequency range from 2.5 to 25,000 cycles.

especially for speech-interference levels in factories, vehicles, and offices.

The third class consists of **"impact"** noises. These also are unpitched (or broad-band) sounds, but since they are of such short duration, special impact-noise analyzers must be used to indicate both the level and duration. Typical noises for this class are produced by blasting, punch presses, typewriters, riveting, drop hammers, firearms, etc.

Refinements in instrumentation have made it possible to combine sound and vibration analyzers into one instrument, making it an unusually versatile device for definitive studies of a broad range of noise problems. Recording instruments can also be attached to the analyzer to give a continuous record of the frequency levels being studied.

The accompanying photographs show just how these sound-study instruments are being used in some industrial applications. All pictures, unless otherwise noted, are by courtesy of General Radio Company.

Another method of sound analysis that is quick and convenient is to measure the intensity in octave bands over a given frequency range. A safety engineer is shown using an octave-band noise analyzer and a sound-level meter in a tool room investigation of a milling-cutter sharpening operation.

Safety Convention

(from page 28)

"One of the most important segments of our screening of applicants," said Mr. Rienzo, "is to give the prospective employee a bona-fide safety test. It is our policy not to hire an individual who does not pass our safety test."

Mr. Rienzo said job applicants at Revere are given safety booklets and are tested on their absorption of the contents. Before being put to work they are also interviewed by the department foreman who discussed safety practices with them.

The safety problems of the State University of New York are as varied as the courses among its 44 scattered colleges, but safety instruction is integrated with everything from agriculture to medicine, ceramics to merchant marine seamanship, and forestry to liberal arts. For this reason, there is great flexibility among the various units in administering a strong safety policy, according to James F. Nihan, director of safety at State University.

State University units throughout New York State have 73,000 college students and campus school pupils and 10,000 staff members. They had last year 1,470 "serious injuries," said Mr. Nihan. College students were the casualties in 788 cases, campus school pupils in 1,750, and employees in 506. In addition there were 10 fires that damaged college structures.

"It is the policy of the University to avoid imposing on its colleges any one safety education course. The diversified activities inherent in the functions of colleges of medicine, teacher training, sciences, agriculture, maritime, and forestry preclude the adoption of one all-embracing campus safety formula. The best accident prevention program is developed locally and adapted to the situation and requirements of each college.

Safety Courses

Mr. Nihan described the safety efforts, including student and staff safety committees, fire drills and fire prevention inspections, accident reporting, use of safety films and posters, student housing safety, and traffic and recreation safety.

The State University colleges, reported Mr. Nihan, offer eleven safety courses; nine courses into which safety is integrated as a major part of the course; 23 courses in which safety is integrated to a considerable extent; fire, driver education and traffic safety courses; and two short courses in safe hunting and the handling of fire arms.

The electrical industry in New York developed its own safety education materials when it found that available educational and promotional materials on safety were too general in nature. Felix Hirsch, member of the executive committee of Safety Trade Group No. 462 of the Joint Industry Board of the Electrical Industry, described how that electrical construction workers were inclined to be bored with standard safety materials because they had too little specific application to their jobs. Mr. Hirsch is vice-president of the Hirsch Electric Company of Brooklyn.

Mr. Hirsch told how the trade group organized a particularized safety program with the cooperation of the union. A film, concerned with the industry safety problems, was so successful that it has been shown widely through the nation. The industry committee also designed a series of pertinent posters to replace the more generalized ones. The new posters were distributed to every electrical job in New York City.

With the cooperation of the safety committee of the union's Local No. 3, the industry committee has set up 10-minute meetings which are held every Monday Morning on every electrical construction job in New York City employing over 25 men.

The effort has been so successful, said Mr. Hirsch, that members of the industry safety committee have been invited to lecture at social clubs made up of members of the union.

Industrial executives and safety engineers were also told how to make their own motion pictures to bring a personalized safety message to their employees at relatively small cost. Fred A. Denz, manager of Remington Rand Corporation's suggestion plan, described how it is done at the "suggestion systems" session of the convention. Mr. Denz, who visits 29 Remington Rand plants to describe successful employee suggestions to supervisory personnel, worked out the "home movie" technique—without previous experience—as the best method of keeping the attention of his audiences and making them understand the suggestions, found successful in one plant or another and proposed for adoption in other plants.

After experimenting with silent and black-and-white films, Mr. Denz found he could produce a 30-minute sound film in color for $500. Black-and-white pictures can be made for about $225. Mr. Denz is a one-man motion picture production outfit. He visits the plant, shoots his pictures, writes his script, and makes the magnetic sound strip. It took him five weeks to do the color sound picture. He shoots his pictures at a three-to-one ratio, taking about 3,000 feet of shots to get 1,000 feet after editing. All the equipment needed to set up a motion picture making and projection operation of this kind can be purchased for less than $1,500, Mr. Denz said.

The Woman's Viewpoint

In addition to the standard methods of accident prevention, an appeal to the vanity of women employees might help promote safety in business offices, the nation's safety experts were told.

It was a woman who told them. Alice Thain, staff supervisor in the New York Telephone Company's commercial division, addressed the office safety session.

After describing accident situations and preventive measures common to most offices, Miss Thain said; "You may wish to consider not only special posters for women but also programs, exhibits and paycheck inserts prepared to appeal to their love of family and even to their vanity."

Miss Thain proposed using such safety messages as "You look so foolish when you fall!" and "A broken leg may hinder you socially."

Among preventive measures for

(Continued on the next page)

Safety Convention
(from page 35)
women she suggested uncluttered lockers.

"Many girls keep numerous items in their lockers," she said, "with the result that, when they open the door, bottles tumble out resulting in breakage—glass and spilled lotion on the floor, both of which may cause serious falls and injury."

As for the male counterparts, Miss Thain said they should be discouraged "from assuming the 'thinking position' which so many men seem to enjoy." She described this as leaning back in a swivel chair or balancing on two legs of a straight chair with feet propped on the desk. This position leads to many crashes, she said.

Safety Warnings

There would be fewer accidents in many trades if pushers of handcarts, waiters with loaded trays, women shoppers and other burdened persons were to sing out variations of the golfer's "Fore!" This interesting proposition was advanced by Edwin F. Ahern, director of training and safety at the Hotel Taft. Mr. Ahern told a convention session that waiters and other employees of the Taft were helping avoid accident by calling "Back of You" or "Safety, Safety" to prevent collision with other employees while pushing handtrucks or carrying heavy trays.

"Most experts in the field of accident prevention tell us that 80 percent of all accidents are caused by the unsafe act of a person and only 20 percent or less by mechanical hazards or unsafe conditions," Mr. Ahern said. "The removal of hazards through safety engineering is of course indispensible to a safety program. But the core of the problem remains the human element.

"Since a hotel, in general is not a highly technical operation, most of our accidents are falls, bumps, burns, collisions and the perpetual problem in our restaurants and kitchens—spillage and wet floors."

Mr. Ahern explained the safety indoctrination of new employees, starting in the personnel office and continuing through training and on-the-job safety.

The accident prevention effort in American homes has lagged behind safety programs in industry, traffic and schools, according to Philip Dykstra, manager of the National Safety Council's home department. He said this was "partially due to the fact that there is no organization of homes, as there are organizations of industries and schools."

Mr. Dykstra said the cause of home safety was being advanced by newspapers, radio, television, women's clubs, church group, parent and teacher organizations and "a host of specialized organizations which have independently become interested in home safety programs for their members, constituents, patients or clients."

But what is lacking, he said, is a co-ordinated, community-wide program for reduction of home accidents. Asserting there was "a crying need for leaders willing to set the example in combatting complacency" about accidents in the home, Mr. Dykstra said:

"The 35,000,000 homes in this country are 35 million separate organizations, each maintaining an individual 'castle' inviolate to regimentation, and practically impervious to any form of regulation."

Mr. Dykstra said that community-wide programming of home accident prevention must be a continual affair." He said it needed "thoughtfully organized activity under capable leadership, attacking the problem within the framework of official and voluntary organizations" rather than "scurrying hither and yon to attack what seems to be a spectacular cause, or one of momentary importance."

Home Accidents

Accidental deaths and injuries in the home will soar nearly 80 percent in the next ten years unless the family unit learns how to safety-manage itself.

This statement was made by Arthur S. Johnson, Vice President and Engineering Manager of the American Mutual Liability Insurance Company. From the published data, he said, it appears inevitable that our present rate of 27,000 accidental deaths in the home will reach 48,000 by 1970 and 4 million home accidental injuries will climb to nearly 7 million.

The only way that this serious situation can be controlled and the statistics proved wrong, he said, is for families to learn that stopping accidents is a question of family willingness and ability to organize their own defenses against accidents on sound management principles. Over the past 25 years industry has succeeded in reducing frequency rates per 100,000 manhours from 14.56 to 6.17 and credit for this performance goes to continuing refinement of management principles and their application for accident control. Similar results will be achieved in the home when the family unit learns how to apply its own management methods.

According to Mr. Johnson a recent study revealed a need for more and better home safety management through: (1) Periodic checks of the home and grounds to spot accident hazards in the making, plus prompt correction of accident-causing conditions; (2) Annual inspection of home heating equipment to eliminate fire hazards before they develop; (3) A thorough housecleaning job at least twice a year including attic and cellar, eliminating all trash and accumulations of unwanted items; (4) Regular checking of all home electrical and other appliances to make sure that none are developing defects, with professional repair services specified for complicated electrical appliances; (5) Constant training of children to create awareness of hazards and to teach them early safe living habits; (6) Proper play supervision for children while they are on the premises; (7) Special precautions and methods to prevent injury to older persons living in the home; (8) Provision for safe storing of all household poisons such as medicines, household cleaners and detergents and pest control preparations, with constant supervision to see that these preparations are kept in their proper storage places at all times when not in use and inaccessible to children; (9) Family training in first aid to better assist the injured until the doctor comes; (10) A thorough study of every accident that does occur in the home to identify the cause and prevent its occurrence again.

(This summary of speeches will be continued in the July Issue.)

Edited by HENRY M. GROSMAN
Counselor at Law, Newark, N. J.

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OCCUPATIONAL DISEASE— Bronchial Asthma—Allergy—Aggravation of Condition

A predisposition (here an allergy) to an occupational disease does not bar a claimant from compensation if the claimant develops what would ordinarily be an occupational disease. The aggravation of a pre-existing condition is denied compensation only if that condition was not occupational in nature. The claimant, a baker, was exposed to dust, fumes, flour, molds and yeast, to which he was allergic. He was eventually disabled from bronchial asthma. There was substantial evidence that the claimant's condition was aggravated by reason of the last employment and that the resulting condition was an occupational disease under the statute. The court rejected the defendant's contention that an award for the aggravation of a disease pre-existing the subject employment violated the compensation law in that it in effect destroyed the time limitations provided therein. The court ruled that a disabling condition resulting from aggravation, and one which can qualify as an occupational disease, is necessarily to be deemed a new disease for purposes of an award. Affirmed.

Mayr vs. Price, New York Supreme Court, Appellate Division. 3rd Judicial Dept. No. 1161. November 13, 1959.

HEART CONDITION—Burden of Proof —Arising Out of Employment

Where a dependent is suing for compensation because of the death of her husband, she must make out a prima facie case, for which it is necessary for her to show that her husband's death was occasioned by an accident arising out of and in the course of his employment. The question is whether or not the petitioner introduced enough evidence to make out a prima facie case. The lower court held that she did not. On Nov. 24th, 1958, the deceased complained to his fellow employees of pains in his arms. He was given some pills by the company doctor. When the deceased returned home he complained to his wife about the pains. The next morning the petitioner discovered that her husband was dead. The family physician concluded that the death was caused by acute myocardial infarction. Two other doctors diagnosed the condition causing death as a coronary obstruction, or a possibility of coronary artery disease.

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The record showed no proof of an accidental injury on Nov. 24. Since the deceased did not collapse or become disabled on his job, and since there was a lack of proof that the deceased's work generally caused or contributed to his death, the petitioner failed to prove that her husband sustained an accidental injury. Affirmed.

Hagewood vs. E. I. Du Pont de Nemours & Co., Tennessee Supreme Court, February 5, 1960.

EVIDENCE—Medical Testimony—Hernia—Aggravation

The board properly allowed a claim since there was substantial evidence in the nature of medical testimony supporting its decision. The decedent died as a result of a hernia operation which aggravated a heart condition, contributing to the cause of his death. The employer had conceded the original accident, notice and causal relationship. The only issue on appeal was whether the board had substantial evidence to support a finding that the hernia operation aggravated the heart condition so as to contribute to the cause of death. The operation took place on April 15, 1953 and he died on Sept. 15th, of the same year. Since the issue was factual in nature, the extended lapse of time between the operation and death was not sufficient reason to reject the medical testimony as a matter of law. Award Affirmed.

Spear vs. Brockway Motor Co., Inc., New York Supreme Court, Appellate Division, Third Judicial Dept., No. 1099. November 13th, 1959.

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HEART ATTACK—Sufficiency of Evidence

The widow of a carpenter who had a heart attack on the job was denied compensation for his death. The uncontradicted evidence indicated that the deceased was not doing strenuous work at the time and, according to the foreman, was doing a job which required the least amount of exertion of any work on a construction job. There was evidence that, on several days prior to this occasion, he had suffered spells of what he thought was indigestion and that is what he thought he had on the morning of his fatal attack. However, his doctor, who is a heart specialist, stated that those previous attacks were probably of the same nature and were warning symptoms of what occurred later. The trial judge had found that the evidence, considered in its most favorable light, did not show that the fatal heart attack resulted from an injury that had arisen out of and in the course of employment. The court affirmed that the trial judge's findings were fully justified and supported by the evidence.

Brown vs. Yearwood, Tennessee Circuit Court, Robertson County, February 5, 1960.

Better Vision in Today's Cars

Clear vision from the driver's seat in 1960 U. S. passenger cars is 15 percent greater on the average than in models built just a decade ago, the Automobile Manufacturers Association has reported. This improvement, the Association said, has resulted from new body designs with more efficient roof support structures and larger windshield and window areas.

Construction Improvements

A survey of new models shows an average of 310 degrees of open viewing at driver eye level compared to about 270 degrees in 1950. New construction methods and engineering techniques have produced slimmer but stronger roof pillars, the AMA stated.

Registration figures show that one out of every two U. S. built cars now on the road is equipped with a wrap-around windshield. First introduced on some 1954 models, the curved-glass windshield was adopted by most other makes the following year and was followed by similar treatment for rear windows. Continued improvement has led to compound curving which arcs the glass out from the roofline to further increase the visual field.

The importance of larger glass areas as a safety factor is increasing steadily, the AMA points out.

In driving on the nation's growing network of multi-lane highways it is necessary to be aware of the movement of traffic on all sides of the vehicles.

Auto safety engineers say the larger windows also allow drivers of following vehicles to see through to other traffic ahead as well as making rear view mirrors more effective and permitting easier observation of overhead signals.

Other recent improvements for driver vision listed by the AMA:

New seat designs with adjusting controls place the driver in the best viewing position.

More flexible windshield wiper blades, up to four inches longer,

(Continued on page 46)

THE FIRE FRONT

Where Should Watchmen's Stationary Clock Systems Be Used?

To keep a minute-by-minute record of the plant watchmen's rounds, portable watchclocks that are carried by the guard and actuated by the insertion of special keys at designated stations on the premises are an effective means of safeguarding property. But there are occasions in which a stationary recording clock system is better suited to do a particular job. With this system, the record is made separately at each station the guard visits and the record remains at that location. Detex Watchclock Corp. cites the following cases in which a stationary clock is especially useful:

1. Situations where a protective association supplies an outside night watch service to several properties (such as stores and gasoline stations) and each proprietor wishes to have a record of the watchman checking his door.

2. Situations where the record of visitations to a particular point are of vital daily importance to someone other than the man in charge of plant protection. For example, the production manager may need his own record of inspections of a certain furnace.

3. Situations where it is important that particular strategic points be visited more frequently than complete tours are made. The single-station watchclock gives records independent of the general tour records.

4. Situations in which special recording of the times of inspection (at night or otherwise) of points of particular concern are desired. This may include process controls, sprinkler control valves, boilers, furnaces, etc. This may be independent of the guard's scheduled tours.

Sprinkler System Inspections

A sprinkler system may not be called upon to operate over a period of many years, but to be effective it must be ready for operation at any time. This necessitates the use of high quality materials and devices, a high grade of installation, and good care and maintenance, warns the National Board of Fire Underwriters.

The inspection in general is to check the maintenance of the system, to compile records from which determination of the sprinkler system's value in case of fire might be made, and to work out fire department methods which will obtain the fullest value in preventing loss by fire or excess water damage.

Knowledge of the water supply of a sprinkler system as to where the supply comes from, its adequacy and pressure, may be obtained from plant engineers, and in most cases the local fire insurance inspectors will also have these data. Where this is not available, hydrant fire flow tests should be made by the fire department or the water department near each building protected by a sprinkler system to determine if pumpers can be supplied from nearby hydrants without reducing the pressure to a point where the sprinkler system would not function. If pressures are seriously reduced, it should be determined which pumper or which hydrant should be used as added supply to the sprinklers through the siamese connection. All hydrants should be inspected to see that they are readily accessible and in serviceable condition.

Valves controlling the water supply for sprinklers should be kept OPEN at all times. Standard control valves are of an indicating type to show whether the valve is open or closed. Where controlling valves are sealed in an open position, seals should not be broken except for emergency reasons. Property owners should be encouraged to report all instances of closed valves or any impairment of the sprinkler system to the office of the Chief of the Fire Department and to the proper insurance office.

In this connection it is also important for owners of sprinklered properties to take cognizance of the fact that, in certain sections of the United States, in the insurance policy, there is a "Sprinkler Warranty" which requires that the assured must first obtain permission from his insurance carrier before making any change in the sprinkler

March Losses Rise

Estimated fire losses in the United States during March amounted to $116,365,000, the National Board of Fire Underwriters has reported. According to Lewis A. Vincent, NBFU's general manager, this loss represents an increase of 16.8 percent over losses of $99,610,000 reported for March 1959, and an increase of 20.2 percent over losses of $96,782,000 for last February.

Losses for the first three months of 1960 now total $306,096,000, a decrease of 1.5 percent from the first three months of 1959, when they amounted to $310,713,000. These estimated losses include an allowance for uninsured and unreported losses.

system such as "closing a valve" or taking a water supply out of service. In other territories, however, this warranty only requires the assured to **notify** his insurance carrier or rating organization of the closing of a valve or that the sprinkler system will be temporarily out of service.

It is important that the location and quick means of access to valves be known and that no valve is closed which should be open. Each valve should therefore be recorded on the inspection blank and a notation made as to what it controls. The pressure on the system should be recorded and checked against previous inspections. Height of water in elevated tanks, water level and air pressure in pressure tanks and provisions to prevent freezing are features to be looked into.

Inspection should include a check on those features which might prevent the proper distribution of water upon the burning material; these should include partitions, shelving and decking, and piling of stock too close to sprinklers. A clearance of at least 18 inches should be maintained below sprinklers. Under certain storage conditions greater clearances up to 36 inches may be required. Unprotected communications between buildings, rooms or floors are also features tending to defeat the adequacy and reliability of the system because of the drafts and obstructions provided.

Any plastic ceiling installed underneath automatic sprinklers, except one that has been listed by Underwriters' Laboratories as one that may be installed under automatic sprinklers without materially affecting their operation or distribution, may seriously interfere with the effectiveness of sprinkler protection.

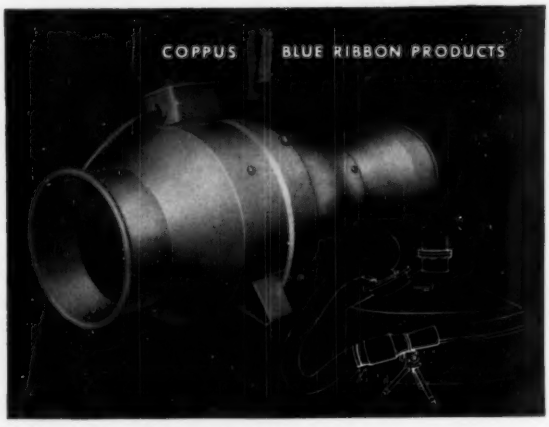
All new construction should be specially surveyed as to the protection provided. This information should be noted on record cards and the pre-fire-fighting plans adjusted if necessary.

In locations where there is much moisture or chemical fumes, piping and hangers are subject to corrosion and deterioration and should be protected by painting with an approved material. Sprinklers should not be painted. Where so coated they should be replaced with new clean sprinklers. Pipes should not be used for the support of stock.

Temperatures maintained at the line of sprinklers determine the type of sprinkler to be used. Where high temperatures are maintained such as over boilers, ovens and in dry rooms, a high degree sprinkler must be used, but if these are placed at lower temperature points, the value of the sprinkler is materially reduced due to the additional heat required for operation. These higher degree sprinklers are colored white, blue or red and can readily be discerned. Uncolored or low degree sprinklers should generally be used and a supply of at least six spare sprinklers be kept in order that replacement might be readily made and the system restored to service. The location of spare sprinklers and sprinkler wrenches should be checked with the management.

Coupling threads on fire department siamese connections should be checked to see that they match those of the fire department and that threads are free of defects

(Continued on page 56)



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The lightning season continues full force. For each tick of the clock, 100 bolts bombard the earth.

IS YOUR LIGHTNING PROTECTION SYSTEM 99% SAFE?

With the rumblings of an anticipated $120 million lightning-loss period from April through December across the country, the Lightning Protection Institute urges property owners to make sure that existing and new lightning protection systems are in good working order.

The vital importance of tested and approved lightning protection systems was stressed in the Institute alert, especially to owners in smaller cities, suburban, and farm areas, where 37 percent of all fires are caused by lightning.

Lightning's terriffic toll of life and property, although far greater than any other natural force like floods, tornadoes or hurricanes, is being controlled to a great extent today by properly installed lightning protection systems.

But, the Institute said, of the 10 million protection systems on homes, farms, public and commercial or industrial buildings, perhaps one-fifth are faulty and would not function properly under lightning storm conditions. Reasons? One or all of these:

(1) **The systems may be too old and deteriorated over the years to function properly.** Authorities in the fire and lightning protection field believe that a system over 5 years of age is in need of reconditioning. In fact, a program of reconditioning lightning protection systems over 5 years old is now in effect in the Eastern states, and consideration of extending this to include Midwestern states is under advisement.

(2) **Alteration of the system during remodeling, repairs, or additions to the building may have rendered it ineffectual.** This may mean that conductors were loosened or disconnected and not replaced; or it may mean that additions were made to the building without tying them into the lightning protection system.

(3) **Improper materials and installation could be the cause of a faulty system.** Special rules and regulations cover the installation of a "rodding" system. Unsupervised or unchecked installation may mean inferior materials or workmanship. In either case, protection offered by the system may fall off greatly from the 99 percent

safety that the owner can expect from a properly installed "Master Label" system.

Role of the Underwriters' "Master Label"

If there is any question about the effectiveness of your present protection system, or if you plan to install a new one, the Lightning Protection Institute continues, it is of first importance to have it checked by a recognized expert, under testing procedures of Underwriters' Laboratories "Master Label" program methods.

Only by doing this, it is pointed out, can you: (1) be sure that the inhabitants are safe from the lightning strikes that kill more than 600 Americans and injure 1,500 per year; (2) keep your property from being counted in the upwards of $120,000,000 property losses tallied annually from lightning; and (3) qualify you (in many states) for preferred insurance rates. Your

MASTER LABEL NO.
Underwriters' Laboratories, Inc.
INSPECTED
LIGHTNING ROD EQUIPMENT
INSTALLED-DATE
NOTICE
ADDITIONS TO THIS BUILDING MAY RENDER PROTECTION AFFORDED BY THIS EQUIPMENT INEFFECTIVE. NOTIFY THE COMPANY MAKING INSTALLATION WHEN ADDITIONS TO BUILDING ARE CONTEMPLATED OR WHEN EQUIPMENT HAS BEEN DAMAGED IN ANY MANNER.

Fig. 1. Underwriters' Master Label (above) is mailed directly to property owners for attachment to buildings.

local insurance agent can advise you on practices in your locality.

What the "Master Label" Comprises

The Master Label is a brass plate, 4" x 2½" that is attached near one of the down conductors of a lightning protection system (see "Master Label" sketch in Figure 1). It is awarded by Underwriters' Laboratories, nationally-known Chicago-based testing organization endorsed by The National Fire Protection Association and fire insurance companies.

A non-profit group, Underwriters' Laboratories has a large staff of experts which subjects commercial products through a very severe series of tests. If an article passes these tests, the manufacturer can then stamp it with an Underwriters' Laboratories label indicating that it has met the requirements of a neutral organization which has no financial interest in sales or profits.

In the case of lightning protection, the reputable manufacturers' articles of equipment are individually tested to make sure there are no defects in manufacture or inadequacies of the material used. An underwriters' material label is then issued to the manufacturer covering the item tested. This label is then affixed to the item by the manufacturer. (See product labels, Figures 2 and 3).

But the "Master Label" for lightning protection systems is awarded in addition to Underwriters' Laboratories labels appearing on the individual rods, conducting cables, connectors, ground rods and fittings. The "Master Label" is an official approval of the quality of the over-all installation. It can be obtained only when both materials used and the installation complies with Underwriters' Laboratories requirements.

"Master Label" Mailed Direct to Property Owner

To protect property owners against a possibility of fraudulent use of labels, a system has been set up under which the owner himself signs the application for a "Master Label," receives a "yellow" copy from the installer, and gets his "Master Label" direct by mail.

Here is the correct procedure to follow, as outlined by the Lightning Protection Institute:

First, check to see that equipment used in the system contains Underwriters' Laboratories equipment labels.

Second, make sure your installer has you sign an application blank

Fig. 2. Gummed paper label (above) is furnished by Underwriters' Laboratories. It goes on the reel, box or coil.

Fig. 3. Underwriters' pressure-sensitive fitting label is attached to every terminal at the plants of manufacturers.

(See sample application blank in Figure 4) for a "Master Label." This must contain the signatures of the authorized dealer or installer, a reputable equipment manufacturer, and yourself as the owner.

Space has been provided on the form for the **property owner's** signature, the **dealer's** signature, and the signature of the **manufacturer** of the labeled lightning protection materials used.

The property owner, or his representative, in signing the application indicates that he has carefully read the application and believes the statements made therein to be correct. The dealer attests that only labeled lightning protection materials have been used and that they have been installed in accordance with the Requirements of Underwriters' Laboratories, Inc. By his signature, the manufacturer accepts the responsibility for the work done by his authorized dealer.

The "Master Label" is mailed directly to you—the owner—for you to attach, yourself, near one of the down conductors. Under no circumstances does the installer or dealer see or attach the "Master Label," as it is **mailed directly to you.**

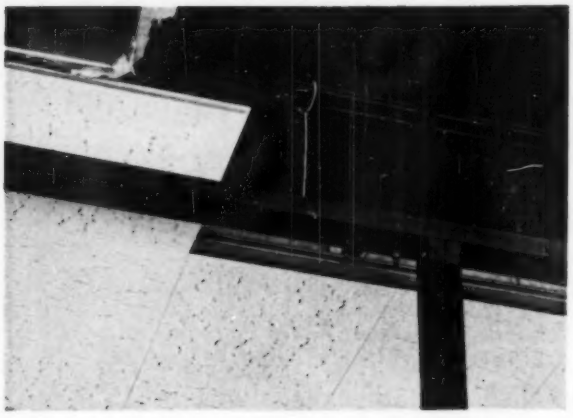
Whenever any work is done on the building which involves loosening or moving any part of the lightning protection system, or addition is made to the building, make sure that the system is checked for proper functioning after work is completed.

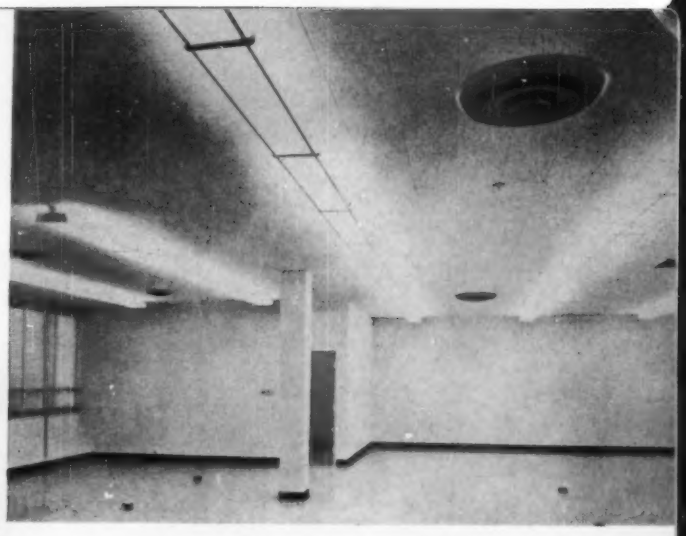
Use Lightning Protection Institute Service

The Lightning Protection Institute, also a non-profit Chicago organization, offers its help whenever it is needed by property owners, organizations, or individuals. Sponsored by reputable long-established lightning protection equipment manufacturers, the Lightning Protection Institute was set up to promote the science and improve the methods of lightning

(Continued on page 46)

ACOUSTICAL TILE SOLVES FIRE PROTECTION PROBLEM





The acoustical tile ceiling protects roof assembly from fire. Density, composition make tile factor in cutting down noise.

Steel runners for the acoustical ceiling are installed and the tile placed in them, protecting components above ceiling.

A new fire-protective acoustical ceiling tile helped solve a tough construction problem for Dallas general contractor Julian Barry recently.

The problem arose late last December as Barry was pressing hard to complete a portion of the second floor of the two-story Insurance Company of North America Building in Dallas in time to meet a February 1 occupancy deadline. A lease had already been signed for the area, and Barry was faced with the job of completing all interior finish work within thirty days.

Difficulty from Weather

Unfortunately, a long seige of cold, wet weather moved into Dallas at the time, causing immediate difficulty with the ceiling installation. The architect's specification called for a two-hour fire rated acoustical ceiling consisting of a suspended plaster fire-stop with an incombustible mineral acoustical tile cemented to the plaster. Because of the excessive moisture in the atmosphere, however, it became apparent that the wet plaster work would take much longer to dry than usual. This in turn threatened to delay other finishing operations, and eliminate any chance of having the second floor offices ready for occupancy by February 1.

Barry realized that the only solution to the problem was to substitute another type of acoustical ceiling—one that could be installed by a completely "dry" method, yet still provide the necessary two-hour fire protection for the structural steel components above the ceiling.

An investigation revealed that there was an acoustical tile that could meet these requirements. The new material could be attached directly to the bottom chords of the bar joints by means of an economical "Z" suspension system. No plaster fire-stop was needed, since the acoustical fire guard ceiling—by itself—could protect the structural steel for the required two-hour period in the event of fire.

Barry immediately obtained permission from the owner of the building, his insurance agent and from the architects to install this fire resistant tile in the building. Then he got in touch with the local acoustical contractor to place an order for the material and contract to have it installed as soon as possible. The shipment was delivered to the job site five days later, and the entire installation, involving nearly 7,000 square feet of ceiling area, took less than a week to complete.

Barry estimates that almost a month of valuable construction time was saved through the use of this type of acoustical tile. While the ceiling was being installed, Barry's own crews were able to start installing the movable ceiling-height partitions and other interior finish materials immediately. This proved to be a decisive factor in successfully meeting the February 1 deadline.

Cleaner Installation

"In addition," says Barry, "since the first floor of the building was already occupied at this time, a wet plaster operation on the second floor would have introduced a large amount of moisture into the building's air-conditioning system. The acoustical tile not only licked that problem for us, but also provided a much cleaner ceiling installation, and simplified our job of finishing off the rest of the floor later on."

Pictures by courtesy of Armstrong Cork Co.

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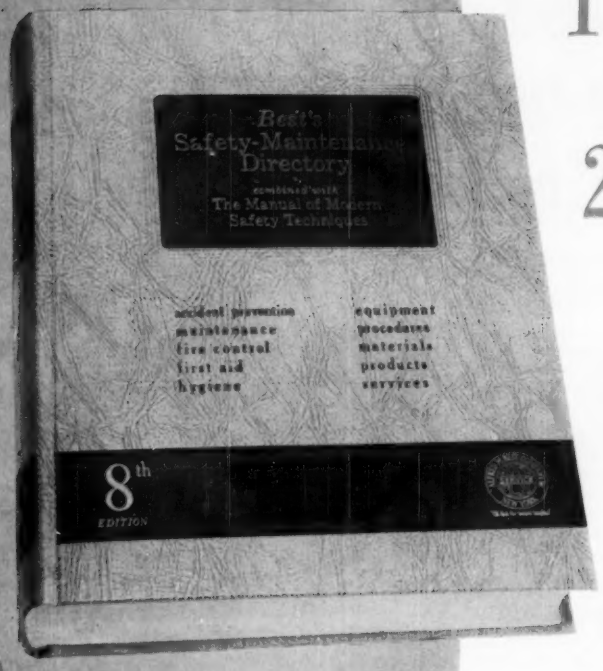

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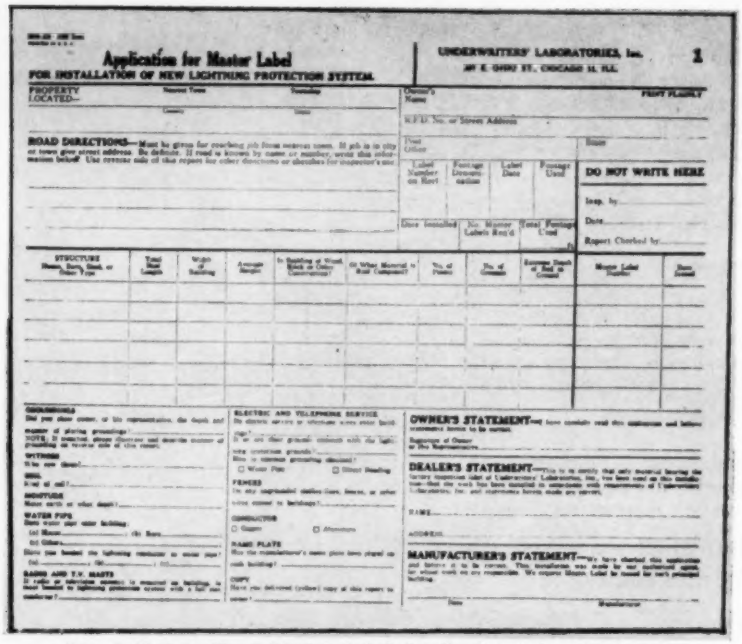
Lightning Protection
(from page 42)

protection, and to advise and give information about it.

Another purpose of Lightning Protection Institute is to formulate and press for the practice of ethical standards in all phases of the lightning protection industry. In this role, the Lightning Protection Institute works toward the goal of full inspection and official approval of all lightning protection systems, new or old.

While Lightning Protection Institute does not take any part in the actual testing of equipment or field inspections of installers and their work, the group works closely with Underwriters' Laboratories in furthering the "Master Label's" application and use.

There are possibilities, the Institute points out, that you may be among those owners whose properties are not protected under the official sanction of the "Master Label." If there is question about this, the best way to get the answer is to write to the Lightning Protection Institute, 53 West Jackson Blvd., Chicago 4, Illinois, for free booklet, "Lightning Facts and Figures."



Application for Master Label
FOR INSTALLATION OF NEW LIGHTNING PROTECTION SYSTEM.

UNDERWRITERS' LABORATORIES, Inc.
207 E. OHIO ST., CHICAGO 11, ILL.

PROPERTY LOCATED—

ROAD DIRECTIONS—

DO NOT WRITE HERE

OWNER'S STATEMENT—

DEALER'S STATEMENT—

MANUFACTURER'S STATEMENT—

Fig. 4. Underwriters' Master Label Application (above) is used in seeking Master Labels for new lightning protective units.

Fire Company Photos

How to improve the effectiveness of fire departments through the use of photography was outlined by a Kodak safety executive for the Fifth Annual Connecticut Fire Officers Conference in Hartford.

Earl R. Wallace, senior safety engineer at Kodak Park Works of Eastman Kodak Company, Rochester, N. Y., spoke before the officers' association at a three-day meeting at the University of Connecticut. His talk was "Photography As It Applies To Fire Companies."

Wallace described the role of photography in training for fire fighting, in fire prevention, in arson investigation, and in public relations as related to fire organizations.

He projected color slides to show how photography can implement training procedures. He told how city fire inspectors, armed with camera and film, can obtain more ready enforcement of necessary fire prevention when photographs are taken of hazardous conditions at the scene and used for a re-check later.

Photography can also serve when trained arson investigators try to obtain legal evidence of set fires, Wallace said.

"Photography of arson should begin as soon as possible, ideally with pictures of the fire in progress, and continue through the period of searching for the evidence of planted incendiary materials and for other objects that suggest prearrangement," he said.

He listed among photographic steps in arson work the identity of spectators. "Often an arsonist will return to the scene to witness the burning," he said.

Since arson for profit may be planned with a view to burning special items or areas, in addition to the object of general destruction, "it is of great importance to photograph any special arrangements that indicate the plan of the arsonist," he said.

"Representative subjects for such photography include documents, such as ledgers or business records purposely exposed to aid their burning, or property, in closets or elsewhere, that has been substituted for more valuable possessions."

Have your fire extinguishers been checked or serviced lately? Are you sure they will operate properly? Most of us see that our automobiles are serviced regularly. This assures longer life for the car and increases highway safety. Regular maintenance is valuable for your portable fire extinguishers, the Fire Equipment Manufacturers' Association, Inc. reports. Call in a reliable service organization and have such fire-fighting equipment thoroughly checked and tested.

Better Vision
(from page 38)

remain perpendicular to curved glass surfaces and clean larger areas.

More dependable wiper motors with increased power maintain more even wiper blade contact with the glass to reduce smearing and aid wiping action in high winds.

Sub-Zero Operation

Improved windshield washers provide washing-wiping action from one control with development of "all-weather" solvent permitting operation in even sub-zero temperatures.

Newly-designed defroster nozzles and more powerful blower motors provide faster, better balanced defrosting patterns.

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(For details, use Key # S-12 on card on page 1)

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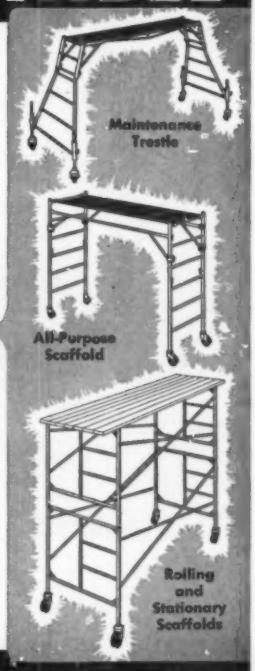

Write for Catalog
Tell us your job problem and we'll send catalog of the equipment best suited to your needs.

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(For details, use Key # S-13 on card on page 1)

Plan for Disaster
(from page 18)

phone operator, or radio dispatcher will provide towing vehicles when requested.

In addition to the emergency trailers, a supply of equipment which we feel necessary for effective emergency work—such equipment as cutting torches, welders, lightning systems, helmets, gloves, and rope, gasoline driven saws, tarpaulins, portable pumps, ladders, floodlights, etc.—is placed in charge of those departments most likely to use it from day to day and who can be held responsible for its condition and location. Lists of available equipment and locations are prepared for all key maintenance people.

V. Pass System—A sure-fire pass system must be worked out with local police, Civil Defense, State Police, and National Guard. We found no phase of the activity so badly handled. It looks simple but unless you have preplanned for this phase, you'll find that all of these agencies will have issued different passes—and will refuse to honor anyone else's—at a time when it is impossible to find anyone with authority to issue a pass. Spend the time now to find out how you can avoid having your key employees locked out, messages delayed, and delivery of essential material stopped, all without knowing what has happened.

VI. Building Construction—For *long-term planning*, keep in mind that studies of the Worcester tornado showed that monolithic concrete construction stood up well even with extensive surface damage—and that the skeletons of well designed steel frame buildings came through intact, though the roof and sides were severely damaged.

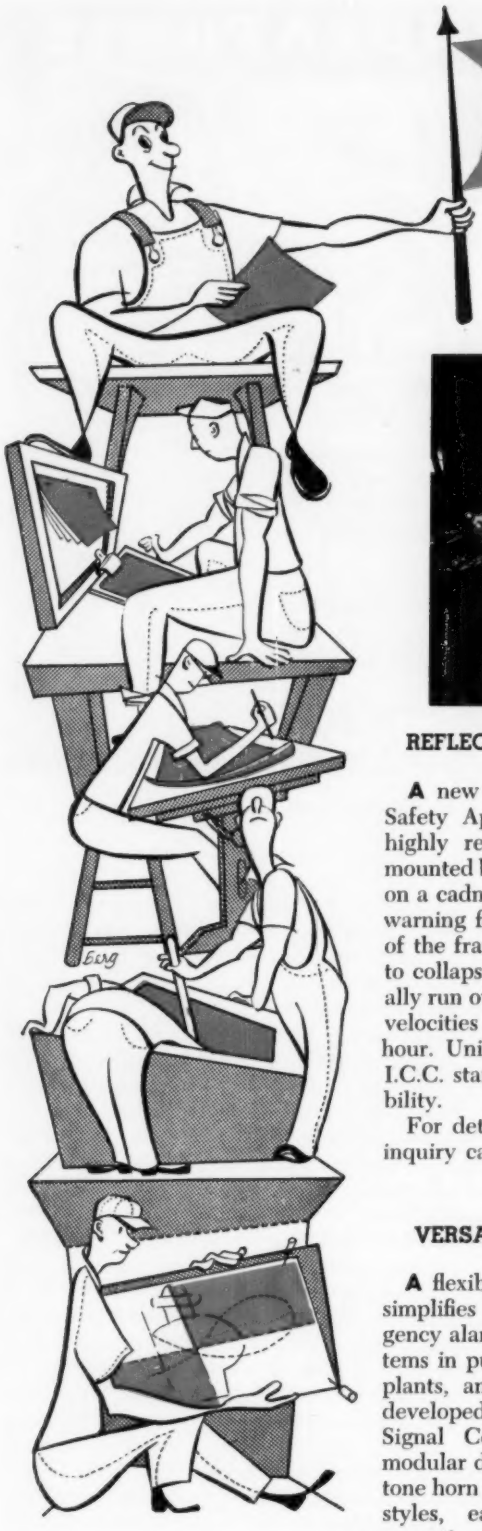
VII. Roof Anchoring, in itself, is probably not adequate to protect a building from the full force of a tornado. However, a roof with a tendency to take-off in a heavy windstorm, or in the fringe area outside a tornado's narrow path where the forces are not so great, can be held down where it belongs simply by fastening it with metal straps to the side walls and columns.

Conclusion—Because of our changing long-term weather pattern, some experts believe that tornadoes and heavy winds are likely to be more frequent in the future. Whether or not this trend exists, they are certainly a normal part of our weather. Of course, that does not mean that we should start going underground, but it does mean that sooner or later air is likely to go on a rampage around your plant—wherever it may be.

Actually, there is no such thing as complete protection against tornadoes, but sensible planning by those who are responsible for plant maintenance and safety can save human life and protect millions of dollars worth of buildings and equipment.

From an address presented at the 11th Plant Maintenance & Engineering Conference. Pictures by courtesy of the Norton Co.

KEEPING UP WITH



WARNING EQUIPMENT SERIES
Other articles April & May

REFLECTIVE ROAD MARKER

A new road marker from Mine Safety Appliances Co. features a highly reflective aluminum panel mounted by means of a spring frame on a cadmium-plated steel base. A warning flag is attached to the top of the frame. The unit is designed to collapse undamaged if accidentally run over; it can withstand wind velocities of up to 40 miles per hour. Unit's reflective surfaces meet I.C.C. standards for nighttime visibility.

For details, use **Key # WA-1** on inquiry card on page 1.

VERSATILE SIGNAL HORN

A flexible vibratory horn, which simplifies the installation of emergency alarms and coded signal systems in public buildings, industrial plants, and institutions, has been developed by Federal Sign and Signal Corp. Based on a new modular design concept, the Vibratone horn provides a choice of three styles, each with six different mounting variations. Modular accessories enable one basic unit to meet widely varying needs. The company states that its tests indicate that the horn outperforms all previous vibratory horns. The basic horn unit fits into any four-inch square electrical outlet box. Its square design is shaped to integrate effectively with the construction modules of all modern buildings. Each unit is equipped with an individual volume control. Sound can be adjusted from a barely audible buzz to an attention-commanding 101–103 decibels at 10 feet. Vibratones are engineered for signal systems involving hours of continuous operation. Low current consumption. Listed by Underwriters' Laboratories.

For details, use **Key # WA-2** on inquiry card on page 1.

CLOSED CIRCUIT TV CAMERA

A self-contained, single-unit transistorized camera designed to function at top efficiency under extreme conditions of vibration and noise is available from General Electric Co. The closed circuit TV camera, Type TE-9-A, has wide application in the military, industrial and educational fields. Enclosed in a dust-tight housing, the Vidicon unit is reported to have successfully passed a series of tests in which it was mounted close to several rocket engines.

The camera, said to possess a new degree of mobility, is equipped with a remote turret for mounting

Warning & Communication Developments

four lenses at one time. The TE-9-A achieves high picture quality—a 650-line horizontal resolution, which is considerably above broadcast studio requirements. It will operate effectively at extremely low light level, and on a power input of only 18 watts. Rugged housing protects it from outside electrical interference such as radar, radio transmitters and car radios. All parts are cast or machined to close tolerances for easier servicing, and are readily accessible. Weight, 9 lbs. Special lenses and other accessories available.

For details, use **Key # WA-3** on inquiry card on page 1.

BARRICADE & WARNING FLAGS

A versatile type of barricade and truck warning flag, visible by night or day, is offered by Davis Emergency Equipment Co.

The new Saflags, made of 100% nylon in neon red color, are both fluorescent and iridescent. Barricade Safety Kit consists of two 16" x 16" flags; diagonal stays to hold them open on ¾" x 27" staffs criss-

crossed on cone-mounted swivel base; two 6" x 7" flags for use on 18" cones; one 28" and two 18" traffic cones; and a canvas carrying case. Durable, fade-resistant nylon is double hemmed to prevent whipping. Designed for use by truck fleets, highway departments, airports, etc.

Also available is a safety vest made of the same material.

For details, use **Key # WA-4** on inquiry card on page 1.

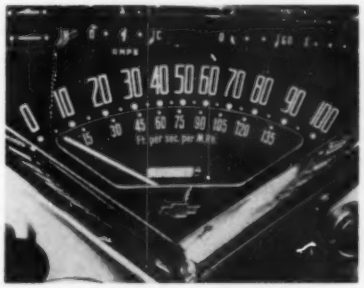
TRANSISTOR MEGAPHONE

A new portable megaphone which projects speech over half-a-mile is announced by Audio Equipment Co., Inc. The Audio Hailer unit is self-contained, and operates on standard flashlight cells. Amplifier uses 4 new-type power-transistors to produce an output of 7 watts, 115 db. Other features are patented "anti-feed-back" construction, hermtically-sealed transformers, and controlled-reluctance microphone. Unit weighs only 5¾ lbs., with pistol-grip for one-hand operation.

For details, use **Key # WA-5** on inquiry card on page 1.

NEW SPEED CALIBRATOR

A new highway safety device, a calibration scale that converts



truck speedometer readings from miles-per-hour to feet-per-second, has been introduced by Speedo Tach Service, Inc.

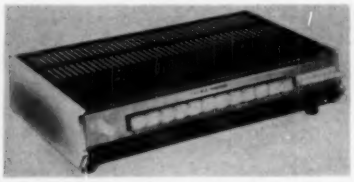
The scale, called Saf-T-Strip, mounts permanently on the face of the speedometer or tachograph dial. At any given speed the driver of the vehicle is constantly aware of the feet per second his vehicle is traveling. This awareness together with the knowledge of their vehicles' stopping distances and their own reaction time should enable truck operators to improve substantially their highway safety records.

For details, use **Key # WA-6** on inquiry card on page 1.

POWER LINE ALARM FOR CRANE CREWS

A weather-resistant power line alarm, with a "fail safe" electronic circuit and electrical interlock, is available from Wintronics. It is designed to provide dependable warning to crane and rig operators and ground crews whose work brings them into dangerous proximity to overhead power lines. The compact, easily installed unit, known as Sig-alarm model TR-1, protects the entire length of the boom. Transistor circuits operate from self-contained power source. Alarm circuits operate from rig's battery.

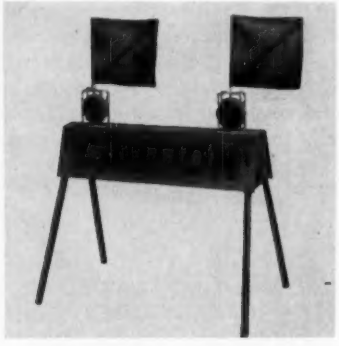
For details, use **Key # WA-7** on inquiry card on page 1.



NEW INTERCOM SYSTEM

An all-transistor intercommunication system, designed to fit into the operating decor of the modern office, has been announced by Talk-A-Phone Co. The new Chief, proportioned like a book, lies flat on the desk and is less than three inches high. Features include a signal which visually indicates to a non-private station that it is being monitored; an incoming call chime; an external relay control for use in extremely high noise level areas; a reciprocal power supply for use where no electrical outlet is available; and private or non-private masters and staffs and busy signals which indicate when a given station is in use. Home intercom systems also available.

For details, use **Key # WA-8** on inquiry card on page 1.



3-WAY WARNING BARRIER

A flashing barrier, designed to give maximum protection day or night and under all weather conditions, has been introduced by the Safe-T-Lite Div. of Griswold Signal Co. Three way warning is claimed through use of optional red warning flags, battery powered high intensity lights to attract attention and sign with 6" high black letters on yellow background with reflectorized tape in each corner.

Flashing lights can be rotated to the position offering the greatest visibility. Both the guard and the light are mounted to withstand shock. Large, shatterproof plastic lenses give wide angle, high intensity viewing. A 12 volt double life battery has been designed to assure long maintenance-free service. The power unit consists of an H. D. transformer with tungsten points; weather sealed and equipped with solderless connectors. Barrier is constructed of heavy gauge steel. Legs are of tubular steel, with special tamper proof lock nuts, easily folded for shipment or storage.

For details, use **Key # WA-9** on inquiry card on page 1.

PORTABLE 2-WAY RADIO

A new transistorized, portable Citizens Band 2-way radio that weighs less than four pounds has been introduced by Jetronic Industries, Inc. The new Spokesman radio utilizes flashlight batteries for its power, and has a transistorized, miniature circuit which handles with the ease of a telephone. Features a separate, ultra-sensitive superheterodyne receiver and a powerful three stage transmitter. Operating on the 27 Mc. frequency available for commercial use, it offers unlimited applications for use by plant personnel, field workers, guard details, delivery trucks, etc. Unit may be used between person-to-person with a reliable range of one mile, base-to-portable with a range of 3 miles.

For details, use **Key # WA-10** on inquiry card on page 1.

NEW PORTABLE MEGAPHONE

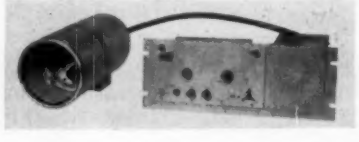
An all-transistorized, battery operated portable megaphone that

can be heard over 600 yards away is offered by Fanon Electronic Industries, Inc. A separate microphone jack enables unit to be used as a portable P.A. The Megavox has been designed for a multitude of purposes under any weather condition. Constructed of lightweight aluminum, the 6 lb. unit is equipped with a waterproof magnetic microphone. Powered by three standard 4.5 volt NEDA type 706 batteries, it has a variable volume control and on-off trigger switch. No warm up period required.

For details, use **Key # WA-11** on inquiry card on page 1.

ROUGH DUTY TV CAMERA

A television camera, built to withstand weather, shock, vibration, noise, salt spray, dust, and other extremes of environment without auxiliary housing, has been announced by Dage Television Div. of Thompson Ramo Wooldridge, Inc. Engineered to military requirements for use in missile and aircraft programs, camera is also applicable for usage in mines, chemical plants, oil refineries, powder plants, etc. Model RGS-10 Ruggedized Television System consists of a camera and camera control capable of being operated up to 2,000 feet apart. Each component weighs 15 lbs. System is totally transistorized, eliminating microphonics and erratic operation. It employs modular construction, us-



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(For details, use Key # S-14 on card on page 1)

ing plug-in transistorized printed circuit modules.

Equipped with provision for the selection of manual or automatic light level compensation. The automatic setting self-adjusts the camera circuits for light level changes over a range of 2000:1. Also provided are noise reduction circuits which present a clean picture at low light levels. No additional equipment is required for pick-up of visual information. The RGS-10 Camera features EIA synchronization, automatic light control over the range of 2000:1, a built in four-lens turret, and horizontal resolution of more than 700 lines. It will operate at from –20°F. to +160°F.; in noise levels of more than 185 db; and vibration to Mil-E-5272-B. Operable with no limit on altitude, it is highly suited for space chamber and flight test applications where conditions of low pressure are encountered. System draws only 15 watts. Complete line of accessories available.

For details, use **Key # WA-12** on inquiry card on page 1.

RAILROAD 2-WAY RADIO UNIT

A 25-watt two-way radio unit, designed to Association of American Railroad specifications, has been developed by General Electric Communication Products Dept. for locomotive and caboose communications on both industrial plant-yard railroads and long-line carriers. Equipment is compatible with automotive two-way radio systems the railroads already may be operating.

To overcome noise obstacles in the cab or caboose, eight-watt audio power is provided, supplying necessary amplification. Equipment can be operated on 60 cycles 117 volts a-c, or on 12 or 64 volts d-c through a rotary converter.

The radio unit and rotary converter can be mounted on a standard AAR-type mounting base in the front compartment of a diesel locomotive. Package includes base, base-plate, AAR plug and cable terminated in an AAR type terminal, and a two-frequency control box for mounting in the cab. Four-frequency equipment also available.

For details, use **Key # WA-13** on inquiry card on page 1.

NEW BURGLAR ALARM

A new capacitance alarm, designed to guard safes, filing cabinets, and other metal objects which can be insulated from the ground, has been introduced by Kidde Ultrasonic & Detection Alarms, Inc. Called Prox-O-Larm, it is approved by Underwriters' Laboratories. Unit can be used to protect up to forty standard filing cabinets, and adjusted to trigger an alarm signal either when an intruder approaches

to within a few inches of the protected object, or on actual contact only. Equipment designed to trigger local alarm or to transmit an alarm to a central station.

Power for over two-thousand hours of operation is provided by self-contained dry cells, or the unit can be powered by a 12 volt bell-ringing transformer, in which case the dry cells will function as automatic standby power.

A fully transistorized printed circuit automatically compensates for changes in temperature or humidity while retaining the required sensitivity. The cabinet measures 11″ x 8″ x 7″.

For details, use **Key # WA-14** on inquiry card on page 1.

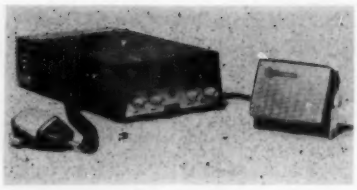
LONG DISTANCE FLASHER

A barricade flasher which has a lens the diameter of a traffic signal, 8 inches, and delivers 60 candle power for 650 hours, is being marketed by R. E. Dietz Co. To be used as an abutment safety light on toll roads and all limited access highways, the new No. 680 flasher is equipped with a single face parabolic reflector lens, two NEDA #6 dry cells, transistorized circuit, carrying handle and mounting bracket. Flash rate is 65 per minute. Tamper-proof mounting and on-off bolts. Weight: 8 lbs.

For details, use **Key # WA-15** on inquiry card on page 1.

TRANSISTORIZED 2-WAY RADIOS

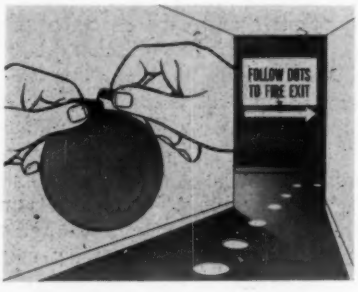
Two-way automotive radio equipment, claimed to contain the highest powered transistorized models, smallest sizes and lowest



battery drain ever to be made commercially available, comprises General Electric's Transistorized Progress line. Models range from 10 to 75 watt output and use only three or four tubes, depending on wattage. Current requirements are so minimal that even the 75-watt size may be left in "standby" position continuously (ready for full volume output), when motor is off, with no danger to the battery.

Advanced circuit design conserves power with no loss in frequency stability. Entire assembly is of module construction; power supplies, power amplifiers, etc., can be carried as spares for quick field repairs. Maintenance is simplified by plug-in terminals on all cable connections; interchangeable, plated-through circuit printed boards; heavy-duty circuit breaker. Available in both wide or narrow band, equipment has provisions for either 12 volt or 24/12 volt power supplies. All units are interchangeable for negative to positive ground.

For details, use **Key # WA-16** on inquiry card on page 1.



COLORED FLOOR MARKERS

Self-sticking colored floor markers to show the way to fire fighting equipment, emergency exits, first aid stations, and other vital locations in plants and offices are offered by W. H. Brady Co.

Markers in four bright, fadeproof colors—are made of .005″ thick vinyl, developed especially for industrial floor use. They will withstand severest truck and pedestrian traffic, and are unaffected by oil, grease, acids, salts, cleaning compounds and most solvents. The markers outlast paint 7 to 1 in tests, and stick instantly and permanently, requiring no adhesives, nails, screws or other mechanical fasteners. Vinyl directional arrows also available.

For details, use **Key # WA-17** on inquiry card on page 1.

EMERGENCY SIGNALING HORN

An emergency signaling horn that firemen entering burning buildings can conveniently wear on their belts or smoke mask straps to signal for help when injured, lost, or pinned down by fire debris, is being manufactured by Falcon Alarm Co. Also suitable for rescue squads, watchmen, workers entering tanks, sewers or radioactive areas, miners, etc. Weighing only 2¼ lbs., this signaling device is self-contained and consists of a pint size cylinder of Freon 22 gas (non-toxic and non-flammable), a manually operated trigger, and a specially engineered horn that gives a loud, high pitched blast, either coded or continuous as willed.

For details, use **Key # WA-18** on inquiry card on page 1.

TRAFFIC ROUTING MARKER

A linemarker that "rolls with the punch" is offered by Mine Safety Appliances Co. The marker is designed for traffic rerouting during periods of construction, temporary detours, or painting of new lines on public or industrial traffic lanes.

The device is a 13½-inch-high flag assembly mounted on a highly stable cadmium-plated steel base. The company reports that preproduction tests have shown that the unit cannot be knocked over, broken or moved when struck by passing vehicles. The springholder returned the flagstaff to an upright position after every impact.

For details, use **Key # WA-19** on inquiry card on page 1.

TRANSISTORIZED ANNUNCIATOR

A new annunciator with no moving parts, the Statalarm, is being offered for power, process and industrial applications by Lundell & Co. Performs all functions for which relay annunciators are now employed. Unit features long life (100 million operations or more) for flashers and lamp bulbs and is completely transistorized. All sequences are available in flashing or color. Bulbs are guaranteed for 5,000 hours. Available for use with any voltage and can be used with normally open or normally closed alarm contacts. Withstands heat up to 150°F. All transistors interchangeable. Gold plated 4-point contact plugs and sockets assure good electrical contact.

For details, use **Key # WA-20** on inquiry card on page 1.

MULTI-CHANNEL 2-WAY RADIO

A low-cost G-12 multi-channel Citizens Communicator 2-way radio, for operation within the 26.965 to 27.235 megacycle Citizens Band, has been designed by the Gonset Div., Young Spring & Wire Corp. Four crystal-controlled channels for both transmitter and receiver enable operators to instantly switch to other channels if voice traffic is especially heavy or interference is present on channel in use. Also permits various stations in system, such as cars, trucks, aircraft or boats, to be assigned different channel frequencies.

Simple, non-technical operation. Desired channel is selected by front-panel switch. Full press-to-talk control by push switch on microphone. Tuning indicator on front panel provides visual monitoring of transmitter performance, insures that equipment is providing peak output at all times. Transmitter is rated at 5 watts power input. Superheterodyne receiver with RF stage has automatic noise limiter and adjustable "squelch" for muted standby. Provides 2½ watt audio channel with built-in speaker for monitoring at some distance from set. Compact unit weighs 11 pounds.

For details, use **Key # WA-21** on inquiry card on page 1.

NEW WARNING BELLS

A new line of bells for fire protection and industrial use, announced by Notifier Corp., features an amperage drain requiring about half the current of other bells listed by Underwriters' Laboratories, but with a high decibel rating, the company reports. A controlled stroke permits the plunger to strike only a fraction as often as older type bells, thus utilizing full vibration output of the gong shell. Parts are interchangeable and bell size may be easily changed after installation by replacement of one shell with another. Coils are wound on heavy insulation and insulated around the periphery to prevent

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(Use Key # S-15 on Inquiry Card on page 1)

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(Use Key # S-16 on Inquiry Card on page 1)

damage or shorting. Live parts are securely held in place or insulated for maximum safety. Of underdome design, the N-Co-Bells are available with 6, 8, 10 or 12 inch gong shells, and are manufactured in all standard voltages, both A.C. and D.C.

For details, use **Key # WA-22** on inquiry card on page 1.

HIGH-SPEED FLASHERS

New NXA Series "Flashmasters" from Carpenter Mfg. Co. have been expressly designed for high-speed applications on expressways, air fields, or for emergency warnings. The special multicoiled neon lamp and giant 7" lenses coupled with a rugged transitorized circuit makes possible a new high in significant light output. Range is well in excess of ½ mile. The lamp is said to have a lifetime measured in years, virtually eliminating need for lamp changes. The entire unit is encased with sturdy 18 gauge drawn steel and a separate, sealed and shock-mounted inner case protects the mechanism. The 12 volt battery has a continuous (24 hour) operating life of about six weeks. Special automatic or radio-controlled cut-offs are available to prolong battery life.

For details, use **Key # WA-23** on inquiry card on page 1.

CHEST-WEAR VOICE AMPLIFIER

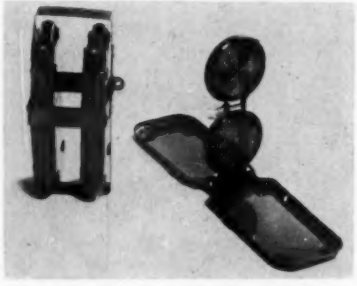
A portable public address system, 6" square, weighing two pounds, and attractive in appearance, has been announced by Antrex Corp. Self-powered by penlight-size flashlight batteries, and employing a a multi-stage transistor, Chest Voice CV-80 is instantly ready for use. The new amplifier offers personal voice communication indoors and outdoors for anyone requiring free use of both hands, and can be used alternately as a platform public address system with accessory hand held microphone, or stand-type microphone. In conjunction with gas, oxygen, or other masks, the unit may be used with accessory throat microphone to provide clear communication.

For details, use **Key # WA-24** on inquiry card on page 1.

DIELECTRIC HAND LINE

A new polypropylene rope, Poly-Line, is offered by Industrial Products Co. Particularly suited for use as hand lines, guy lines and other utility and communication applications because of high electrical resistance, ruggedness and workability. Almost twice as strong as manila, it flexes and knots readily even at sub-zero temperatures. Its smooth, whisker-free surface and 35% lighter weight make for great handling ease. Waterproof and impervious to rot, mold or mildew.

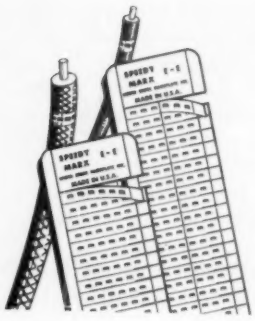
For details, use **Key # WA-25** on inquiry card on page 1.



REFLECTOR FLARE KIT

Latest I.C.C. regulations require all interstate commercial vehicles to carry emergency flares for roadside stops. No. 321 Reflector Flare Kit from R. E. Dietz Co. is designed to fulfill this requirement. It consists of three reflex reflector flares and a mounting bracket with provisions for locking. Also available with three flags and flagstaffs.

For details, use **Key # WA-26** on inquiry card on page 1.



NEW WIRE MARKERS

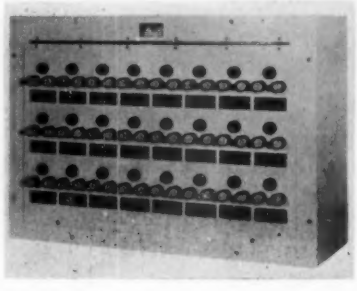
Pressure-sensitive aluminum foil wire markers from North Shore Nameplate are furnished on quick-dispensing cards for easy, convenient application. Because of a specially compounded coating on the new Red Rocket cards—the Speedy-Marx aluminum markers can be stripped off instantly without distortion. A handy starter strip aids in removing the markers and also protects the remaining markers when it is pressed back into place.

Foil wire markers, supplied in two sizes, are inherently resistant to soil, water, and grease; have a transparent surface coating which resists rubbing and abrasion; and conform to NEMA-ASA specifications. Precut for easy handling, the aluminum bends under lightest finger pressure to fit any wire diameter.

For details, use **Key # WA-27** on inquiry card on page 1.

CONTROL PANEL ANNUNCIATOR

Unit supervises outlying electrical contacts and signals visually on the annunciator, and causes audible



signal to sound continuously until remote audible signal reset push button is operated. Unit will continue to indicate outlying alarm condition after reset button is actuated. Resetting of signal does not prevent the subsequent operation of any other indicator. Fuses protecting each indication will glow if a short or ground should occur. Manufactured by Patrick & Wilkins.

For details, use **Key #WA-28** on inquiry card on page 1.

FLUORESCENT SAFETY EQUIPMENT FOR HIGHWAY WORKERS

Hard hat covers and bib-style vests in high visibility, vinyl-bonded-to-nylon material are available from Industrial Products Co. Designed to protect highway personnel, utility crews, etc., the material has extra brilliance, higher tear strength and greater resistance to fading and discoloration. The hat covers are supplied in one universal style to fit all types and sizes of headgear. Ray-D-8 vests, which are full cut and have a solid panel front and back to prevent gapping, are reversible and may be worn over the heaviest clothing by adjustment of drawstrings.

For details, use **Key # WA-29** on inquiry card on page 1.

ILLUMINATED DISPLAY UNIT

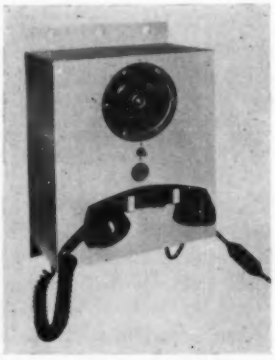
New illuminated display unit, Model "60," adds impact to poster and news-picture program. Engineered lighting of Safety, Waste-Reduction and Quality displays intensifies employee interest. The units are provided in conjunction with complete visual display programs, giving general or specific coverage of plant problems requiring employee cooperation. It features a lighting switch on the unit itself and long-life lights. Made by Elliott Service Co.

For details, use **Key # WA-30** on inquiry card on page 1.

EXPLOSION-PROOF INTERCOM

Electronic intercom equipment for use in hazardous areas containing flammable and explosive gases, vapors and dusts has been developed by Executone, Inc. Components are listed by Underwriters' laboratories. The company reports that an exclusive feature of the equipment is its full selectivity: stations in hazardous areas can call other stations in either hazardous or safe areas. System also features remote reply, permitting a person to answer from a reasonable distance without stopping his work to approach the station.

For details, use **Key # WA-31** on inquiry card on page 1.



NEW LOUDSPEAKING TELEPHONES FOR MINES

A simple, efficient new loudspeaking telephone for underground communication has been announced by Femco, Inc. Operating personnel can page each other over loudspeakers, then converse in natural voice tones with the desired person. The systems employ existing mine telephone lines and are designed to provide clear communication over heavily loaded, noisy or otherwise poor lines. Compact, low cost, self-contained station units, easy to install, consist of an integral loudspeaker and telephone handset mounted on a dust-tight moisture-resistant wall case. A 100% transistorized transreceiver, a dryer and two batteries are enclosed in the sheet metal housing. A switch on the front of the case permits selection of either of two groups for general paging.

For details, use **Key # WA-32** on inquiry card on page 1.

Cut Fork Lift Truck Accidents

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Dept. SM Columbus, Nebraska

(Use Key # S-17 on Inquiry Card on page 1)

HIGH INTENSITY FLASHER

A new flasher light reported visible for more than a mile in two directions is announced by R. D. Fageol Co. Transi-Flasher Model HD-2T is said to produce over 70 brilliant flashes per minute front and rear through two 4-inch optical plastic fresnel lenses which afford peak diffusion. Electronic circuit of the HD-2T, which includes 2 transistors, 1 capacitor and 4 resistors, is said to require no field serv-

ice or adjustment. Standard 8-cell battery has a minimum of 60 full days continuous working life. Sealed against moisture and dirt, mechanism is contained in an extra-heavy gauge stamped steel case. A vandal-proof "Conut" locking device retains the rib-reenforced cover and secures the light to its mounting.

For details, use **Key # WA-33** on inquiry card on page 1.

EMERGENCY LIGHT & SIGNAL

An emergency power light which switches instantly to battery-powered light when power fails has been developed by J. B. Moore Laboratories, Inc. Moore-Lite may also serve as a warning sentry. Placed in line with process equipment, pumps or other devices, its light can be made to blink urgently, notifying the operator that power is off. For use in factories, homes, schools and stores to prevent accidents to personnel and equipment.

For details, use **Key # WA-34** on inquiry card on page 1.

NON-CONDUCTIVE FLAG

A new warning flag in which both the diagonal reinforcing stays and the fabric itself are completely non-conductive and non-magnetic, is available from Industrial Products Co. These highly visible fluorescent flags are particularly suited for marking off danger areas in power plants, sub stations or wherever high voltages present a potential hazard. Ray-D-8 flags are also said to provide more permanent outdoor protection on highways because their strong vinyl-bonded-to-nylon construction resists fading, discoloration, abrasion and temperature extremes.

For details, use **Key # WA-35** on inquiry card on page 1.

Sprinkler Inspections
(from page 42)

which would prevent connection of hose lines. If hose threads differ, does the fire company carry adapters which will permit hose to be connected to the outside siamese connection? Check if caps are in place and removable, and siamese connections are readily accessible.

The inspection should include a check on condition of pumps, boilers, air compressors and electrical equipment, if any of these are necessary for adequate sprinkler protection.

Do-It-Yourself Course In Sanitation

The "Modern Cleaning Methods" home study course sponsored by the National Sanitary Supply Association has topped the one-thousand mark in enrollment! 1154 custodians, maintenance supervisors and other service personnel have availed themselves of this opportunity to become more skilled in their cleaning and maintenance tasks.

This course has met with a great deal of success as a self-improvement program for the custodian—increasing his efficiency and reducing the operating costs of the establishments. It is interesting to note that 95 percent of cleaning maintenance cost is labor; by educating employees in these modern, more efficient methods, more work can be accomplished and operating costs reduced.

Another aim of this program is to improve appearance, health and safety standards in the nation's institutions and industrial plants. By making the custodian more aware of these benefits, he takes a more positive attitude towards his work, and improves the existing standards.

After an employee has enrolled, the first lesson is sent to him. He studies the lesson, completes the lesson test and sends it to the NSSA office to be corrected and graded. His next lesson is then mailed to him. After all thirteen lessons are completed, a certificate of completion is awarded.

The titles of the thirteen lessons in their order of study are: Bacteriology; Communicable Diseases; Planning An Efficient Cleaning Program; History of Sanitation I; History of Sanitation II; Personal Hygiene; Facts About Brushes; Washing Windows, Walls and Ceilings; Sanitation Chemistry I; Sanitation Chemistry II; Metal Cleaning; Facts About Wax; and Modern Floor Care.

The Modern Cleaning Methods course has ben widely acclaimed. The National Recognition Award for Distinguished Achievement was presented to the National Sanitary Supply Association by the Chamber of Commerce of the United States. They cited the course as a significant contribution to the general public.

Further information on this training course is available to executives in the industrial and institutional fields by writing to the National Sanitary Supply Association, 159 North Dearborn Street, Chicago 1, Illinois. This is an opportunity for all maintenance people to learn more about their work—shortcuts that will make their work easier, plus many sanitation tips that will make their cleaning tasks more thorough and the surroundings more pleasant and safer for everyone concerned.

Sanitation Seminar by AMA a Hit

"Excellent" was the nearly unanimous verdict of the registrants attending the American Management Association's Orientation Seminar on "Organizing and Managing an Industrial Sanitation Program," held recently at the Hotel Astor, New York City.

At the conclusion of the three-day meeting, each registrant was asked to fill out a critique sheet giving his evaluation of the speakers and their topics, and also the extent to which each attendee felt he got out of the seminar what he had come to learn. On the basis of this impressive vote of confidence, AMA is making tentative plans to hold a "shirtsleeve" workshop on the topic in Chicago some time next fall. The recently completed seminar, in which the Association of American Soap & Glycerine Producers, Inc., participated actively, constituted the first consideration of the subject of industrial sanitation by the influential American Management Association.

Certificates of Safety Achievement have been awarded to 475 plants representing 49 member companies of the Manufacturing Chemists' Association. Each plant was operated the entire calendar year of 1959 without a single disabling injury. A total of 430 plants of 44 MCA member companies won similar awards from the Association last year. The safety awards program is an activity of the MCA's General Safety Committee.

The 1960 list of winners shows that 19 plants have qualified for a certificate in each of the 10 years of the awards program. Fifteen other plants have worked nine of the 10 years without a single disabling injury, and an additional 186 plants have injury-free records for three or more of the past 10 years. The 475 plants receiving awards this year have a collective total of approximately half-a-million man-years of injury-free chemical manufacturing.

Commenting on the 1959 record, S. F. Spence of American Cyanamid Company and chairman of MCA's General Safety Committee, said the encouraging result was unexpected because the 1959 injury frequency rate for MCA members is 3.38, up 13 percent from the all-time low rate of 2.98 recorded for 1958. The severity rate of 617 man-days lost per million man-hours worked is up 18 percent.

"It is now apparent," he said, "that the increase in the injury frequency rate for 1959 was limited to isolated segments of the industry."

• • •

A citation for "outstanding professional achievement" was presented recently at Northeastern University, Boston, to Edward B. Landry, director of safety and health of the U.S. Post Office Department, Washington.

A 1928 graduate from the N. U. College of Engineering, Mr. Landry previously received a Navy Department meritorious civilian service award and a citation from the American Standards Association. He was chief safety engineer for the Navy Department from 1941 to 1946.

• • •

John H. Breck, Inc., Springfield (Mass.), was recently appointed to an organizational membership on President Eisenhower's Committee for the Employment of the Physically Handicapped.

Concurrently, a citation for Meritorious Service for outstanding service to the handicapped was presented to John H. Breck, Sr., founder and Chairman of the Board of John H. Breck, Inc., on behalf of President Eisenhower by John M. Convery, Director of Industrial Service of the National Association of Manufacturers.

Mr. Convery stated that the Breck Company is the first Massachusetts concern to be so cited. He noted that membership on the committee is an honor in that the company so cited has tangible evidence of recognition provided by its interest in the employment of the handicapped.

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Employees of the Chemstrand Corporation at all manufacturing plants, laboratories, and other facilities in the United States have worked a full calendar year without a single injury that caused loss of time from their jobs, according to President Edw. A. O'Neal, Jr. He said that safe working conditions in the Chemstrand units are the result of the individual education effort, cooperation, safety awareness and practice of every employee.

He noted that the safety record has real meaning when it is considered that more than 8,000 employees have been free from major injury and their families free from worry about their well-being.

The company has achieved an impressive record for safe operations. Its nylon plant at Pensacola, Florida, established and then exceeded its own world's record for safety. The employees passed the 17,106,185 injury-free hour mark on December 12, 1959, and recently went over the 21 million point as they seek to surpass the all-industry safety record.

Employees in the Engineering and Development Division have worked for more than 3,300 days without losing time because of injury on the job. At the Acrilan acrylic fiber plant, Decatur, Alabama, employees have recently topped their own record, as have employees in the Applications Research and Service Department.

Corporate administrative personnel have a history of seven years of safe operations without injury. All Chemstrand units have received national awards of honor for their safety programs.

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The American-Marietta Company has presented Safety Award Plaques to 108 of its plants for completing the entire 1959 year without a disabling injury. The company was able to show a reduction in accident-frequency rate for the fifth consecutive year, in spite of a 29 percent increase in man-hours worked during 1959. With a total of 266 manufacturing plants and warehouses in its diversified operations, 40.6 percent of American-Marietta's plants were successful in attaining top safety performance.

Alfred C. Kemp, Director of Safety, presented the plaques and congratulated employees for maintaining perfect safety records. Mr. Kemp stated that it is only through the wholehearted cooperation of all employees and the recognition

of individual responsibility for safety consciousness that records of this distinction can be attained.

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Highway safety at Spector Freight System, Inc., was better last year than ever before. In fact, each of its over-the-road drivers turned in a performance equivalent to a 10,000 mile a year motorist driving 16 years without even a scratched fender. The Chicago based motor freight carrier reported that in the 60.5 million miles traversed in 1959 by its 800 over-the-road drivers, accidents occurred on average only every 162,500 miles. Even the most minor accidents were included in the count, explained Fred Mayerhofer, the company's director of safety.

Highlights of the year's accomplishment included a 60-man relay team driving more than a million consecutive safe miles and 17 drivers with long-time safety records continuing their accident-free performance past the 27,000,000 mile point.

"Last year's accident ratio was .62—a little more than half an accident—per hundred thousand miles. In 1958 the ratio was .72, and a year earlier it was .74," Mayerhofer said.

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Two divisions of Jones & Laughlin Steel Corporation were honored at the National Safety Council's annual Safety Engineering Conference in Pittsburgh. J&L's Aliquippa Works received the Council's top award—the Award of Honor—and J&L's Research Laboratories was presented the Award of Merit.

The Aliquippa award is both for record low-frequency and low-severity rate of accidents during 1959.

The new low-frequency of 1.54 accidents for every million man-hours worked is a Corporation record, bettering the mark of 2.41 accidents per million man-hours worked at the Pittsburgh Works in 1956. The former Aliquippa Works record was 2.55, established in 1957.

The severity rate of accidents, or number of days lost per million man-hours worked was reduced to 298 at Aliquippa for 1959. This betters the 1955 record of 440 at the Aliquippa Works. The J&L record is held by the Cleveland Works which had a severity record of 160 in 1957.

The Aliquippa Works' 14,000 employees surpassed the mark of a million man-hours worked without a disabling accident on eight occasions during 1959 and established a new all-time J&L Steel Works safety record of three million man-hours worked without a disabling injury during the year. The three million man-hour record resulted in a special honor citation from the National Safety Council.

J&L's Research Laboratories, which include the Graham Laboratory for J&L Research, Pittsburgh; the Hazelwood Research Laboratory, Pittsburgh; and the Negaunee Ore Research Laboratory at Negaunee, Mich., had accident-free records for all of 1959.

The safety record at the three laboratories was initiated in August, 1955, and still is continuing. As of December 31, 1959, the three units had compiled 1,308,639 man-hours worked without a disabling injury.

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The Ordnance Section at the U. S. Army Engineer Center and Fort Belvoir has successfully completed its eighth year without an accident. This makes a total of 2,773,698 accident-free man-hours from June 10, 1952 to December 31, 1959.

Major General Gerald E. Galloway, Post commanding general, presented the award to Major Steve A. DeZulovich, Post Ordnance Officer during a recent ceremony.

This record is outstanding in view of the varied duties of the Ordnance shops. The section's busy schedule includes an annual check-up of all military vehicles, and nearby Nike installations frequently call upon the Post Ordnance Section for repair work.

Major DeZulovich and his staff maintain a constant vigil over the shops to ensure that safety procedures are carried out. He has been in charge of the Ordnance Section for the last three years. Safety awards are not new to Major DeZulovich who received a number of U. S. Depot Safety Awards while stationed at the Ordnance Depot, Warren, Ohio.

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For the second consecutive year, employees of United States Rubber Co. led the rubber industry, which has one of the best safety records among all types of industrial groups, in setting safety records on a world-wide basis. More than 49,000 people, performing nearly a hundred million man-hours of work in 54 domestic, Canadian and overseas U.S. Rubber plants in fields such as rubber manufacturing, plastics, textiles and chemicals, amassed the lowest accident experience record and lost the fewest days due to accidents of any major rubber company group.

U.S. Rubber's 1959 mark was 1.32 world-wide, 50 percent better than the previous year's record. Domestic plants of U.S. Rubber scored a 1.14 mark as their part of the company's low world-wide accident-frequency rate.

In the accounting of accident severity, based on the days lost per million man-hours worked, U.S. Rubber again led the way. Employees lost only 150 days per million man-hours worked on a world-wide basis. This compares with the rubber industry average from the last available NSC figures of 387 days lost and the general industry average of 744 days.

U.S. Rubber employees worked a total of 98,121,000 man-hours during 1959 (76,000,000 of these in 34 domestic plants) without a single fatality. It was the second time within the past three years that the company's domestic employees achieved a fatality-free record.

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Florida Builders, Inc., St. Petersburg, Florida has been awarded a certificate of merit for outstanding safety performance by the U. S. Army Corps of Engineers at Mobile, Alabama. The certificate covers the year 1959, during which Florida Builders, Inc. worked 484,107 man-hours without a disabling injury on the construction of 400 housing units at Fort Rucker, Alabama. Previously, the company had worked 718,371 accident-free hours during 1957 and 1958.

inside the trade

The fiftieth anniversary of the *FLORIDIN COMPANY*, pioneer producer of fuller's earth oil and grease adsorbents was observed with a Floridin Week celebration in the firm's headquarters city, Tallahassee, Fla. Floridin Company was founded in 1910 to supply the oil industry with fuller's earth, a mineral product whose unique adsorptive and filtering qualities were in demand by crude oil refiners. Through research, the company has since developed more than 100 products and applications for fuller's earth, including absorbents for oil, grease and other liquids from all types of flooring. The company is now a subsidiary of Pennsylvania Glass Sand Co.

A fleet of three business aircraft was recently acquired by *PANGBORN CORPORATION* manufacturers of blast cleaning, vibratory finishing and dust control equipment. Pangborn will use the planes primarily to provide more rapid and convenient customer service. With the fleet already in operation, the company is able to fly sales personnel, engineers and replacement parts to a customer's plant within hours after counsel or service is requested. The planes will also be used to transport prospective customers to Hagerstown for conferences and equipment demonstrations under arrangements made through Pangborn District Office managers.

GOJER, INC., Akron, Ohio, manufacturer of skin cleansing products, has announced the appointment of *Alfred E. "Al" Hendershot* as Assistant Sales Manager. Mr. Hendershot has accumulated 12 years experience with the company and is well grounded in the problems of the automotive field.

Promotion of *A. David Imhof* to Vice-President, Sales and Technical Service, of *THE GERSON STEWART CO.*, manufacturer of chemical sanitation products, was announced by Lewis R. Schilling, President. Mr. Imhof, who has been with the Chemical Department since 1953, was previously Technical Director. He will have full charge of sales and customer service activities.

Edward R. Randall has been appointed Manager, Installation & Service Department, Industrial and Marine Division, *WALTER KIDDE & COMPANY, INC.*, Belleville, N. J. Formerly he was Director of Purchases for the Industrial and Marine Division, and at one time also was purchasing agent for Walter Kidde Constructors, Inc. in New York City.

Now observing its 25th anniversary, the *PENETONE COMPANY* has grown to become one of the largest producers of industrial and institutional cleaners. Harry I. Etelman founded the company in 1935 and for the first few years Penetone was a one-man operation. However, by 1942 the company was able to move into its own building in Tenafly, N. J. Today Penetone employs 150 persons, has an affiliate plant in Sweden, recently acquired a substantial interest in a large English company for the manufacture and sale of Penetone products in Great Britain. The company has representatives in several foreign countries.

The Tenafly plant of Penetone Company has been enlarged five times in the last 17 years. It produces more than 150 specialized products for building maintenance of all types, cleaning railroad equipment, automotive production cleaning, steamship and marine cleaning needs, cleaning in steel mills and metal fabricating plants.

Walter R. Hearst

FLAMORT CHEMICAL CO. has announced the passing of Dr. Walter R. Hearst, President and founder of the company, on March 20, 1960.

Mrs. Gabrielle M. Hearst, who has been actively associated with the company since its founding, has been elected President and will continue the management and established policy of the company as in the past. The research and chemical staff will remain unchanged.

M. L. SNYDER & SON, INC. of Philadelphia has announced the purchase of the *National Fire Protection Co.* of West Chester, Pa., which company for 60 years has been engaged in the supplying, renting and recharging of fire extinguishers of all types in the general Philadelphia area. Snyder's has been providing a similar extinguisher distribution and maintenance service as well as being a manufacturer of approved extinguishers.

Roy E. Campbell, a veteran of 31 years with the company, has retired as director of advertising and sales promotion for *JOY MANUFACTURING CO.*, Pittsburgh-based manufacturer of mining, construction and industrial machinery.

Robert E. Kinter, former assistant director, replaces him as director, responsible for administration of services to the company's Coal Machinery, Mining and Construction, and Industrial Divisions, and providing staff advice to the advertising departments of the Baash-Ross, Electrical Products, and Western Precipitation Divisions.

John B. Moore has announced the formation of *J. B. MOORE LABORATORIES, INC.*, which will develop, manufacture and market electronic items. Several of the products will be of interest to the safety field, such as warning flashers and communication equipment. The address of the new company is: P. O. Box 606, Opa-Locka, Fla. Mr. Moore is well known in the industrial safety field for his work in the development of safer solvents and as a consultant in accident-prevention work.

Matt P. Hirt has been appointed by *ALVA ALLEN INDUSTRIES* of Clinton, Mo., as their factory representative for the states of Missouri, Oklahoma, Nebraska, Iowa, Kansas, Minnesota and the Eastern part of North and South Dakota.

Mr. Hirt's background includes many years of successful experience and assistance in helping to provide technical information, etc., relating to power punch presses and accessories.

STOKVIS-MULTITON CORP. has appointed *Eric Schmidt* as mid-western regional sales manager, according to an announcement by John Stokvis, president. Mr. Schmidt, who will be located in

HOW ABOUT YOU?

Do you know that many cancers can be cured if detected early? That an annual health checkup is your best protection against cancer?

Are you giving yourself this big advantage? Or are you taking chances with your life because of foolish attitudes about cancer like these?

DON'T EVEN MENTION THAT WORD!

Fear keeps some people from even *learning* cancer facts that can save their lives.

NEVER FELT BETTER!

Checkups help to detect cancer in its "silent" stage before you notice any symptom.

COSTS TOO MUCH!

Dollars you spend for the protection of your health can mean years of life.

Millions of Americans have made an annual checkup a habit... *for life.* How about you?

AMERICAN CANCER SOCIETY

Chicago, will supervise the sales and service of the growing line of Stokvis-Multiton materials handling products.

BOBRICK DISPENSERS, INC., of New York and Los Angeles, have appointed *Lee R. Hanley* as Architectural Sales Representative for its soap dispensing equipment. Hanley will serve Missouri, Southern Illinois and Kansas City, Kansas, and will headquarter in St. Louis at 1030 Glenmoor Avenue. He will call on Architects and Engineers as well as service Bobrick Distributors.

John F. Nieman has been named service products district manager for *JOHNSON'S WAX* in the southeastern United States.

He will direct sales of Johnson's maintenance and industrial products in Florida, Georgia, South Carolina and parts of North Carolina, Tennessee, Mississippi and Virginia. Prior to this assignment Nieman was a service products sales supervisor in Johnson's East-Central district. A graduate of Villanova College, he joined the company in 1951 in Philadelphia as a maintenance products salesman.

Appointment of *Daniel P. Wedel* as manager of plastics sales for the paint division of *PITTSBURGH PLATE GLASS CO.* is announced by Howard J. Mather, vice president—industrial sales, paint division. Mr. Wedel succeeds Dr. E. H. Haux who has retired after nearly 30 years with the company. Mr. Wedel, formerly assistant manager of plastics sales, joined Pittsburgh Plate in 1945. Dr. Haux began his career with the company in Duplate safety glass research at Creighton (Pa.) in 1931.

BURGESS-MANNING CO., Dallas, has announced several new personnel assignments in its industrial silencer division headquarters in Dallas. *H. A. Dietrich*, vice-president and manager of the division, has transferred to Dallas from Libertyville, Ill., former headquarters for the division. Dietrich was manager of the division when it was headquartered in Libertyville.

Carl Read, Jr., the company's office manager in Dallas, has been appointed advertising manager. He joined the company in 1953.

R. J. McCormick, former coordinator of the company's Libertyville division, has been transferred to Dallas and promoted to senior sales coordinator.

The Libertyville district sales office will continue to be directed by *F. C. Duerr*, district manager, and *R. F. Anderson*, sales engineer. The company said that although the administration of the industrial silencer division is now centralized in Dallas, shipments of both standard catalog items and special products will be made from either Dallas or Libertyville, as determined by customers' requirements. Engineering, order processing, and sales inquiries are handled in the company's Dallas office.

Louis G. Halla has been promoted from a sales engineer to manager of the company's western district sales offices in Los Angeles. Two men were promoted in the company's southern district sales office in Dallas. *H. L. Harris* is the new manager, and *G. R. Packer*, former sales coordinator, is now a sales engineer. The firm also announced that *Albert J. Stella, Jr.*, joined the company as a sales engineer in the eastern district sales offices in New York City.

The appointment of *Delwin F. Smith* as sales representative for the Springfield and Western Massachusetts territory has been announced by *LEWIS-SHEPARD PRODUCTS, INC.*, Watertown, Mass., producer of electric powered fork lift trucks and related materials handling equipment. Complete sales and service facilities for this territory will be maintained at 501 St. James Avenue, Springfield 4, Massachusetts.

Safety Appointments

Appointment of *Douglas W. Brown* as safety engineer, United States Steel Corporation, was announced by Dan Farrell, director of safety-personnel services for the Corporation.

A native of Highland Park, Ill., Mr. Brown was graduated from Highland Park High School in 1938. He attended Beloit College, Beloit, Wis., and Lake Forest College, Lake Forest, Ill.

His first job with U. S. Steel was that of industrial relations trainee in 1945 at the Edgar Thomson Works, Braddock, Pa. A year later he was promoted to supervisor of safety there and in 1951 was transferred to the Fairless Works, Fairless Hills, Pa., where he became general supervisor of safety. It was this position he held at the time of his present appointment.

Harlan Von Seggern has joined the Maytag company as safety and plant protection engineer at the appliance firm's wringer washer plant in Newton. The post has been vacant since the death of A. M. Countryman last December.

Before coming to Maytag, Von Seggern was plant manager of training for National Gypsum company, Fort Dodge, Iowa. He also served as personnel and safety supervisor there. Prior to that, he was chief safety engineer for National Gypsum at Wahoo, Neb. He has also been a physical science teacher at high schools in Sioux City and Mondamin, Iowa. He attended schools in Scribner, Neb., and is a 1948 graduate of Nebraska State college, Wayne, receiving a bachelor of science degree in physical science.

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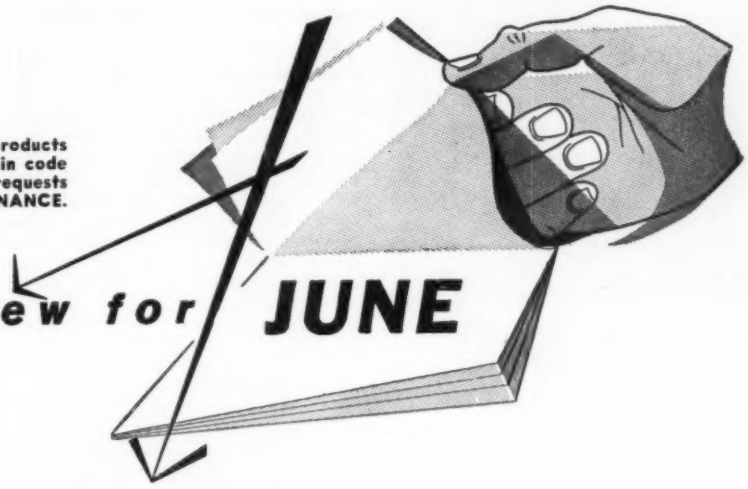
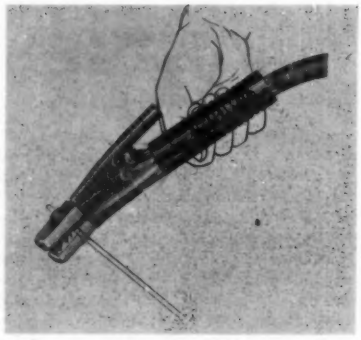


what's new for JUNE



AIR-COOLED ELECTRODE HOLDER

(Use Key # 733 on Inquiry Card on page 1)

AN AIR-COOLED electrode holder for heavy duty metallic arc welding is being produced by J. B. Nottingham & Co. It will hold electrodes through 3/8" diam. and is rated 600 amps at 40 volts and 60% duty cycle. The Kool Grip is said to let a man weld a full shift without changing holders, and to eliminate the hazards and complications of water cooling. A shipyard testing the new holder estimates a gain of one man-hour per eight-hour shift, the manufacturer reports.

Air at low pressure flowing from perforations in the handle cools the holder and the operator's hand. The holder is the lever-action semi-insulated type with straight jaws as standard equipment and offset jaws available on order. The complete unit includes a 6½' Neoprene-encased cable whip and a "Y" connection with air inlet brazed into a Cam-Lok twist-and-lock electrical connector.

SHATTER-PROOF LIGHT BULB

(Use Key # 734 on Inquiry Card on page 1)

IMPERVIOUS TO thermal shock, acid, welding sparks and slag, a shatter-proof electric light bulb, developed by Duro-Test Corp. with the cooperation of Corning Glass Works, Owens-Corning Fiberglas Corp. and Dow Corning Corp., is said to be the first innovation in industrial, residential, and commercial lighting in 20 years. The new lamp, trade-named Flamescent, is reported to produce an entirely different lighting effect, resembling a flame, and to have a higher lumen output and more brilliance than any other processed bulb.

The bulb derives its high luminosity and shatter-proof qualities from Fiberglas yarn, and a new silicone adhesive makes it virtually impervious to sudden temperature change: it can be dunked while hot into ice water and remain lighted. A cooler burning filament assures longer life. It can be used for work under trucks on

wet surfaces, in welding operations, for inspection of tanks, etc. Its increased resistance to breakage from impact is shown in the picture. Both the new bulb, at left, and an ordinary bulb, right, were dropped from a height of five feet.

PORTABLE WELDING SCREENS

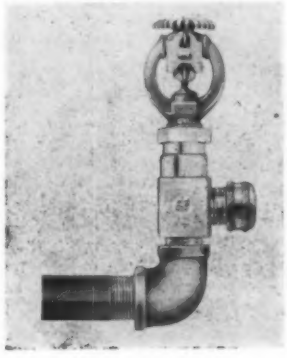
(Use Key # 735 on Inquiry Card on page 13

PORTABLE CURTAINS for extra safety and to help maintain the gas shield in gas shielded arc welding under drafty conditions have been announced by National Cylinder Gas Div. of Chemetron Corp. The screens are available in four-panel models, providing complete enclosure and protection on four sides, and in triple- and single-curtain models. A variety of sizes range up to 8 feet high and 8 feet wide. Frames are constructed of 1-inch tubular steel with a durable rust-proof finish. Curtains are held in place by sturdy lacing through heavy metal grommets. Curtains are available in 12-ounce fire-resistant duck, neoprene-coated fiberglas, and aluminized asbestos cloth. Legs raise the screens 3 inches off the ground for ventilation. Ball-bearing casters with 2-inch rubber wheels are available as extra equipment.

LINE TESTER FOR SPRINKLER SYSTEMS

(Use Key # 736 on Inquiry Card on page 1)

APPROVED by Factory Mutual Laboratories, Seco Line Testers, from Seco Mfg., Inc., may be permanently installed in either new or existing sprinkler systems in order to determine, at any time, the condition of branch lines. Simply by removing the side outlet cap, connecting a hose and turning the hex head to "open" position, a flow-test can be made for branch line obstructions. Owners may comply with approved system maintenance procedure without sacrificing production or shutting down the system. Reduced costs and simplified procedure permit a regular testing schedule to assure proper functioning of the system in the event of fire.



SPRAYING EQUIPMENT FOR MIXED COMPONENTS

(Use Key # 737 on Inquiry Card on page 1)

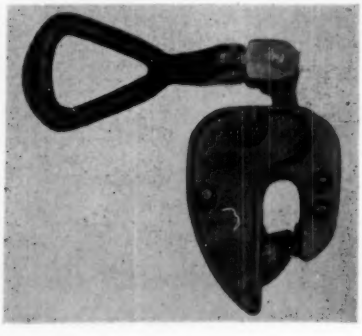
A SPECIAL-DESIGN spray gun for spraying plural component materials such as catalyst resins and plastics has been developed by the Binks Mfg. Co. It mixes catalyst, activator, and resin inside the spray gun, then sprays the mixture immediately. Tests are said to have shown that materials with reaction times as low as four seconds can be sprayed on a continuous basis with the Turbulator.

The Formulator, companion to the spray gun, meters the materials to the gun in precise amounts, insuring accurate make-up by weight and volume of the material being sprayed. The system virtually eliminates the batch method of mixing multiple component materials and makes it possible to spray plastics for an unlimited time with no danger of the material hardening before it is used. Polyurethanes, gelcoats, epoxies, alkyds, and polyesters are a few of the materials that can be sprayed with the Turbulator.

UNIVERSAL JOINT CLAMP

(Use Key # 738 on Inquiry Card on page 1)

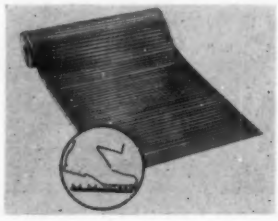
FITTING their popular "G" Clamp with a drop forged universal joint, Merrill Brothers have developed another clamp for use where unusual side strains are brought to bear on shackles in rolling drums or tanks while welding. The company reports that these clamps also have proven to be very practical in many other operations. Completely drop forged and heat treated, the Merrill Universal Joint Clamp has a safety factor of 5 to 1. Available in six standard sizes.



NEW BASEBOARD SCRUBBER

(Use Key # 739 on Inquiry Card on page 1)

A CLEANING tool designed to scrub and scour baseboards, mouldings and floor edges in one operation has been announced by Fuller Brush Co., Industrial Products Div. The 4MM-102 Baseboard Scrubber cleans hard-to-reach corners and crevices usually cleansed only by hand when a complete and thorough sanitizing job is being performed. The scrubber has 6 rows of resilient palmetto fibers which remain strong and rigid under both wet and dry conditions.



ANTI-SLIP FLOOR RUNNER

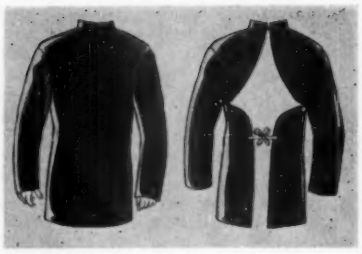
(Use Key # 740 on Inquiry Card on page 1)

THE PATENTED "V" rib design, featured by Wear Proof Mat Co. in their Shad-O-Rug and Cross-Rib Runner, is said to have "windshield wiper action." The heavy duty blades flex just enough to scrape dirt and grime off shoes. The dirt then falls between the ribs where it can be easily cleaned out later. These ¼ inch long rubber runners are suggested for use in entrance-ways, corridors and aisles—helping to protect floors and carpeting by stopping dirt before it is spread and helping to prevent falls and accidents by providing an effective anti-slip surface.

FLUORESCENT LAMP GUARD

(Use Key # 741 on Inquiry Card on page 1)

A SLIP-ON guard which positively prevents fluorescent lamps from falling from their sockets, even if the fixtures spread, has been developed by the Gets-A-Lite Co. The Guard and Guide is made of spring steel wire in the form of a squared off "U." Two prongs turn outward; at the opposite end the wire is formed into a small rectangle, set at right angles to the prongs. The rectangle section is slipped over the fixture socket, with the prongs projecting at a 45° angle. A guard and guide is used at each end of the fixture. A fluorescent lamp is then inserted, the guards steering it into the sockets quickly and easily. No tools required.



WELDERS' SAFETY CLOTHING

(Use Key # 742 on Inquiry Card on page 1)

FLAME-RESISTANT finely woven cotton twill clothing in black has been announced by the Singer Glove Mfg. Co., who report its cost to be less than half that of leather. Offered for use in inert gas arc welding, the Blackline clothing is designed to provide safety and comfort where the danger of heat, flame or solder splashes is present. Lightweight, it is available in capes with bib, bib aprons and full jackets.

MODULAR STEEL FLOOR PLATE

(Use Key # 743 on Inquiry Card on page 1)

A NEW steel floor plate, said to render a permanent, level, safe flooring that will not crack, chip or dent, has been introduced by Rockwell-Standard Corp. The product, Mod-U-Lok, is a modular-size plate, coupled with locking tabs that hold it firmly in place until the concrete cures. Thirty-two exposed concrete surfaces in each plate offer safe footing in places that are normally wet or oily. Each foot square plate has fifty-two steel prongs, top and sides, that anchor into the concrete base to provide heavy duty durability. The company states that these floor plates will not warp, buckle or rattle under the most severe traffic loads.

IMPROVED ROOFING SYSTEM

(Use Key # 744 on Inquiry Card on page 1)

IMPROVEMENTS in its Vulca-Dek System for applying a new roof over the old base, or constructing a completely new built-up roof, are announced by The Monroe Company, Inc. The system "vulcanizes" the new roofing to the old so that the bond can never be broken. The base is completely covered, with a sealer being used instead of nails. The special grade Cold Process felt will not become brittle and will remain permanently resilient. Siliconized Rufferseal, or Asbestolite for a brilliant, attractive aluminum roof, assures even greater protection, the company states. They also report that there is no fire hazard, since no heating is required. Savings of up to 55% of the installation costs for roofing are estimated.

DURABLE REFLECTIVE TRAFFIC BUTTONS

(Use Key # 745 on Inquiry Card on page 1)

A LANE-MARKING traffic button is reported by its manufacturer, the Porce-Line Co., to stay put on highways and streets, be easily applied and highly visible at night, and have a near-perfect performance record during six years of extensive in-service tests. Made of polysulphide base compounds and reflective glass beads, the markers can be bonded to any pavement surface with a special concrete adhesive. The compounds form a plastic which, even when combined with the reflective beads, is highly resistant to impact.

The Thio-Line buttons are said to demonstrate a life expectancy of 10–15 years as street and crosswalk markers, and up to 25 years in highway service. Four inches in diameter and ⅜ inches high, the markers may be installed on pavement which is clean and free of oil and dust. Bond will secure within one hour with pavement temperature of 70°F; for lower temperatures or traffic requirements, curing can be accelerated to a matter of minutes with application of heat.

SHEETS AND PARTS LIFTER

(Use Key # 746 on Inquiry Card on page 1)

A VACUUM LIFTER designed for lifting and moving heavy sheets, sections of refrigerators, stoves, cabinets, auto and truck panels, etc., is being produced by the Safety Vacuum Lifter Co. The heavy duty unit lifts and holds securely, releasing instantly with a light pull on the valve release lever. Made of aluminum with 4" neoprene cups. For use on metal, plastic, fiber, glass and other smooth surfaced materials. Will not mar surfaces.

STACK MUFFLER SAFEGUARD

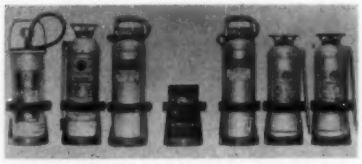
(Use Key # 747 on Inquiry Card on page 1)

UNIVERSAL installation is featured in the new Safe-T-Guard diesel stack muffler protective screen developed by Alexander-Tagg Industries, Inc. It requires no special tools and is available in kit form, the kit containing necessary brackets and directions so that the screen may be installed easily on 7", 8", 8½" and 9" diameter mufflers. Many states require this guard as a safety precaution so that anyone accidentally brushing against the muffler will not be burned.

WATER WETTING AGENT

(Use Key # 748 on Inquiry Card on page 1)

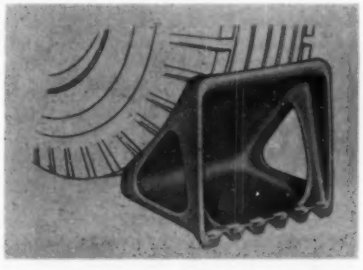
A LIQUID concentrate, designed for use with any liquid proportioner or eductor to increase the "wetting" power of water, has been developed by the Deynor Corp. Fire-Lik is practically neutral, odorless, will not stain or discolor and is not corrosive. It may be used in a ½% to 1% solution to reduce the surface tension of ordinary water, increasing the water's fire-fighting effectiveness by making it better able to adhere and soak into surfaces and capillary spaces. Compatible with either fresh or salt water, the concentrate is completely soluble and will not salt out at any dilution. It may be stored indefinitely and will remain effective.



NEW EXTINGUISHER BRACKET

(Use Key # 749 on Inquiry Card on page 1)

A CLAMPING, band-type fire extinguisher bracket has been introduced by Walter Kidde & Company, Inc., for use with any of its 2½ gallon wet chemical portables. It is designed for installation on automotive equipment, on shipboard or wherever heavy vibration is encountered. It can be wall, floor, or runningboard mounted. While the new bracket grips the portable securely, only a flip of the wrist is needed to free the extinguisher for immediate use.



NEW SAFETY WHEEL BLOCK

(Use Key # 750 on Inquiry Card on page 1)

A SAFETY wheel block, introduced by Calumet Steel Castings Corp., is reported to incorporate increased pavement gripping ability, a re-designed face for better tire conformance and greater strength, and sturdier angular handle supports with well rounded edges for easier handling. The WB2H Wheel Block maintains the same structural shape as its predecessor, but the two outermost calks have been made slightly longer than the rest to provide instant grip action as soon as pressure has been exerted on the block. Then, as the load increases, the middle calks also engage the pavement to a positive holding position. Designed to hold heavy trucks, trailers, etc.

1ST AID EYE-FACE FOUNTAIN

(Use Key # 751 on Inquiry Card on page 1)

LATEST DEVELOPMENT in Haws Emergency Eye and Face Wash fountains is the 7900 series, designed to blanket facial areas with cleansing water from all angles. The large stainless steel bowl contains a 360° spray ring, with six broad-coverage spray jets that bathe face and eyes, in case of accidental contamination by chemicals, caustics, fire or other matter. Jets are instantly activated when the large push valve is moved. Valve stays open until manually closed, leaving hands free to assist in first aid. Water coverage is over a 95 sq. in. area, and jets deliver eight to ten gallons per minute on ten lbs. flow pressure. All functional parts are corrosion resistant. Bowl is 22-gauge stainless steel. Wall and pedestal models are available.

NEW MODEL EAR GUARD

(Use Key # 752 on Inquiry Card on page 1)

IMPROVEMENTS, including removable ear seals, to increase both the comfort and effectiveness of their new Straight-away Ear Protectors, have been announced by the David Clark Co. Seals can be removed or put on the domes in seconds. A braided nylon and neoprene band holds them securely in place. Four-leaf-clover design dome filters provide additional decibel attenuation. The new model, 372-9A, weighs only 11 ounces and has a wider, more flexible head band with a lower spring tension which greatly reduces pressure on top and sides of head.

NEW WALL CLEANING MACHINE

(Use Key # 753 on Inquiry Card on page 1)

A NEWLY DESIGNED air powered wall cleaning machine, said to operate more efficiently and in a fraction of the time of ordinary wall cleaning methods, is offered by Central States Maintenance Co. Called Wall-O-Matic, the noiseless model is non-electric, utilizing compressed air for continuous eight hour operation. Walls are thoroughly cleaned and painted surfaces revitalized without mess, drip or streaking. Drop cloths to protect rugs, furniture, etc., are not required.

Using a special cleaning solution, the machine may be utilized on all types of walls, including plaster, painted, brick, stippled, etc. It may also be used to clean many types of acoustical ceilings. The portable unit does not require special operator training. A spray nozzle attachment cleans hard-to-get-at places and irregular shaped objects such as pipes, woodwork, etc.

DISPOSABLE PLASTIC GLOVES

(Use Key # 754 on Inquiry Card on page 1)

DISPOSABLE GLOVES made of acid resistant poly, and prepowdered to be slipped on easily, are available from Busse Plastics Co. They have fine welded edge seams and are exceedingly thin so the wearer need not lose the sensitiveness of touch. In the hospital they eliminate the need to reprocess rubber gloves and save repeated wash-ups. Applications include changing infectious dressings, making examinations, handling isolation cases, etc. They may also be used by food handlers, painters, dye handlers, veterinarians, electronic and metal parts handlers, etc.

SAFER CLEANING SOLVENT

(Use Key # 755 on Inquiry Card on page 1)

A NEW SOLVENT from The Dow Chemical Co. is reported to be one of the least toxic and least expensive of all common chlorinated solvents. It has no flash or fire point, its flammability characteristics being compared to trichloroethylene, and a maximum allowable vapor concentration of 500 parts per million. The product, Chlorothene NU, can be recovered by standard distillation apparatus, and does not require stainless steel or Heresite-line equipment. Uses include spray cleaning of electrical equipment, as a vapor pressure depressant in aerosols, as an adhesive activator in assembly operations, for production cold cleaning, as a carrier of dry lubricants such as graphite, as a fabric cleaner and as an additive to cutting oils.

PANORAMIC REAR VIEW MIRROR

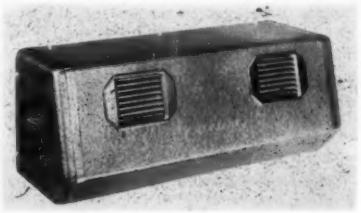
(Use Key # 756 on Inquiry Card on page 1)

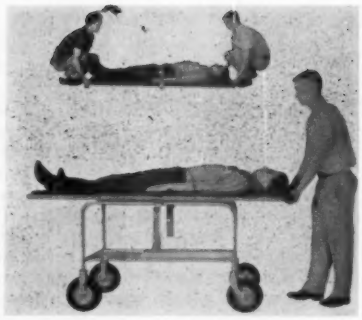
CALLED THE Wyd-Vue, a new mirror, available from the Trippe Mfg. Co., provides the motorist with a 160-degree view —to the rear and on both sides—without requiring him to turn his head or lose sight of the road. The mirror consists of five, optically true, non-glare panels set at scientifically correct angles. It eliminates blind spots to facilitate safer movement and parking, and reduces driver fatigue by permitting a more stationary head position. Panoramic view also eliminates need for outside mirrors.

PORTABLE AIR PURIFIER

(Use Key # 757 on Inquiry Card on page 1)

A NEW, portable model electronic air purifying unit is being manufactured by Activeaire Devices, Inc. The purifying cycle consists of first filtering the air, then ozonating it, and finally discharging it for recirculation. The company claims that the unit rapidly eliminates odors, smoke, dust and air particles, etc. They recommend the purifier for relief of hay fever, asthma, sinus trouble, etc. Unit includes all-steel cabinet and chassis, fiberglass filter and ozone lamps. No extensive maintenance required.

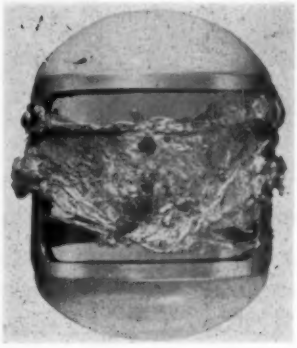




IN-PLANT MOBILE STRETCHER

(Use Key # 758 on Inquiry Card on page 1)

A LOW-COST industrial wheel stretcher, specifically designed for the first aid department of all industrial plants, has been developed by the Hausted Division of Simmons Co. Features of importance to the transportation of injured workers include: Balloon-type pneumatic tires on ball bearing wheels, a full-size, 26¾" x 74", 19 gauge steel litter top with rubber bumper surrounding the edges. An air foam pad and pair of restraining straps are provided. Top may be removed from welded tubular frame and set on the floor on its legs. This permits easier placement of patient on litter following an accident.



HEAT RESISTANT FACE SHIELD

(Use Key # 759 on Inquiry Card on page 1)

A NEW type of window for face shields was tested with molten lead by the manufacturer, Chicago Eye Shield Co., to determine its heat resistant qualities. Called Multi-Ply windows, the new product was subjected to 6½ pounds of 635 degree molten lead for a period of 45 seconds. Though the hot lead was poured on the same spot, the company reports that none of it penetrated the window. Under identical test conditions, a Cellulose Acetate window melted in 9 seconds after only ½ pound of lead was poured on it. Multi-Ply windows are available in six basic face shields featuring fiber glass crowns and shells. Face shields have a Nylanite headgear with pivoting cross band adjustable for height and an offset cambered rear headband. Headgear is interchangeable with hard hats.

NEW EXTINGUISHER APPROVED FOR ALL CLASSES OF FIRES

(Use Key # 760 on Inquiry Card on page 1)

THE FIRST extinguisher to be listed by Underwriters' Laboratories for use against all standard classes of fires—Class A, mainly paper and wood; Class B, burning liquids; Class C, live electrical fires; and combustible metal fires, including mag-

nesium—is being marketed by Alim Corp. Operation of the ABC AllClass is by simple one-hand grasp and instant discharge without inverting. Unit is designed for close maneuvering; operator is protected from heat of flames by a cloud of powder that is non-toxic, non-conductive and non-abrasive.

Controlled flow at valve keeps hose and nozzle clear. Unit effective in temperatures as low as 40° below zero. One of the major benefits of the universal extinguisher, the company states, is that it eliminates the danger of using the wrong type of unit. Key to the new development is a new extinguishing agent, Alim ABC AllClass Powder. Powder is changed to a deposit; process enables absorption of heat and extinguishment of flame, and prevents reignition of the fire.

ELECTRONIC CONTROL GUARD

(Use Key # 761 on Inquiry Card on page 1)

MODEL 500-1B Electronic Safety Control, modernized and simplified, provides instant protection of machine operators without contact, reports the manufacturer, Security Controls, Inc. The control leaves the work area fully accessible and unobstructed, a particulary important feature for stamping, powdered metal, embossing, cutting and creasing presses, eccentric slotters, rolls, etc. Components are a sensing element or antenna, connected by a coaxial cable to a key-locked, shock-mounted, gasketed enclosure. The element is a conductive conduit which is easily shaped to the desired boundaries of the restricted area, without hindering production or feeding operations. It is mounted on the machine with special insulator blocks.

An invisible, radio-like field, of adjustable proportions, is set up around the dangerous work zone. A hand, a tool, or other undesirable object entering the forbidden area instantly actuates a relay in the control cabinet, bringing the machine to an immediate stop. Operation will not resume until the object is removed. Where desirable and safe, the field can be nullified during the machine's upstroke, through use of a cam limit switch. Power failure, disconnect, or faulty operation of the control, drops out the master relay, stopping the machine instantly.

DISPOSABLE EAR PLUG

(Use Key # 762 on Inquiry Card on page 1)

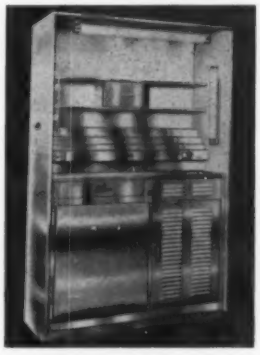
AN ANTI-NOISE disposable ear plug has been developed by Frontier Industrial Products. Made of special waxes and cotton, the plug is soft and pliable, and can be molded to fit the individual wearer's ear. The ear plugs provide complete closure of the ear canal and reduce noise levels as much as 30 db, depending on the source.

Designed for workers who are exposed to loud, temporary or sustained noises, such as metal workers, drilling, boiler making, riveting, etc., the plugs are comfortable to wear and are completely sanitary, being inexpensive enough to be thrown away after each use.

LOCKOUT DEVICE FOR SWITCHES AND FUSE BOXES

(Use Key # 763 on Inquiry Card on page 1)

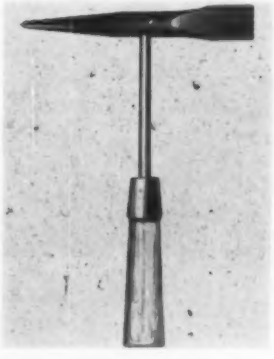
A PROTECTIVE DEVICE for use throughout industrial plants, Industrial Product Co.'s Safety Multiple Lockout is simple to use on all electric switches and fuse boxes. It is designed to prevent injuries and damage to costly equipment caused by one workman accidentally throwing a switch while other members of the maintenance crew are still at work on a piece of machinery. Lockout is punched with 3/8" holes to handle up to six padlocks. Made of cadmium plated, cold rolled steel with case hardened offset jaws, unit weighs only 10 ounces. In addition to properly locking out all switches and fuse boxes, it is suggested that locks be color coded and keys assigned only to approved maintenance personnel.



COMPACT MEDICINE STATION

(Use Key # 764 on Inquiry Card on page 1)

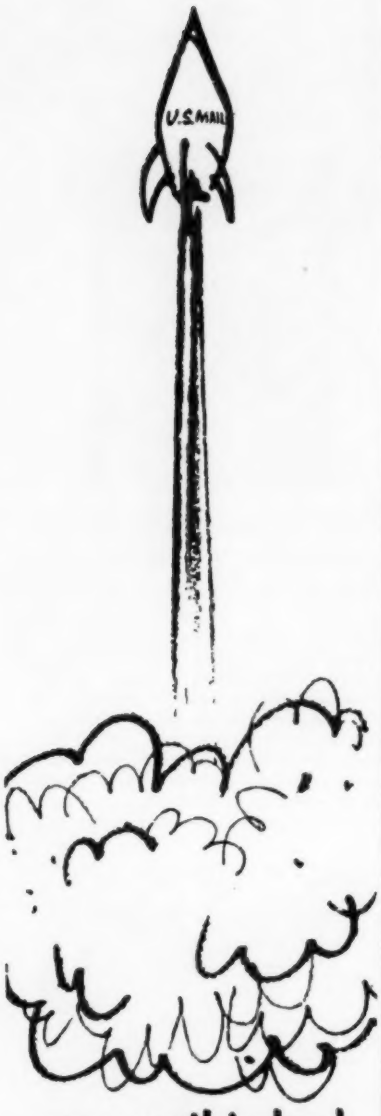
AN ECONOMICALLY designed medicine station for installation in first aid rooms of industrial plants has been announced by General Scientific Equipment Co. The Medi-Prep is a compact, easy-to-clean, stainless steel unit which houses a 4-cubic-foot refrigerator, sink, water faucet, work counter, tiered shelves, double lock narcotic cabinet, and other features which facilitate storing, preparing and dispensing of medications. Available in two sizes, each requiring minimal floor space.



IMPROVED TOMAHAWK

(Use Key # 765 on Inquiry Card on page 1)

A RECENT refinement in the Atlas Welder's Tomahawk design is "pinning" the head. The Atlas Welding Accessories Co., maker of the tool, offers positive assurance that the head, which is press-fitted on the shaft and secured by a steel pin, can now neither loosen nor turn on the shaft. The new method of fastening the head to the shaft is claimed to be the safest of any tried.



zone mail indeed results in speed

The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address — after the city, before the state.

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SEND THIS PERSONAL SAFETY MESSAGE TO EVERY ONE OF YOUR EMPLOYEES.

- Safety is made appealling . . . vivid . . . engaging . . . colorful!!
- Each worker clearly sees how safety benefits him . . . how doing his part helps others!
- You get enthusiastic safety cooperation instead of tolerance . . . from every employee . . . every month!

. . . talks the worker's language!

YOUR IMPRINT HERE!

packed with pictures, alive with animated cartoons, touched with humour that gives snap to your message, it makes safety interesting and down to earth. Twelve times a year it covers accident hazards. Across the nation leading industrial firms state it's the only safety paper their employees will read . . . and take home to their families.

It gives the employer the advantages of personal contact . . . saves time and expense. One "lost time" accident prevented . . . more than pays for the yearly cost! Try it . . . it works!

YOUR SIGNATURE HERE!

Make *Your Safety News* your own publication . . . your good will ambassador . . . working for you toward better industrial relations. If you wish, your facsimile signature can be printed here to identify you with the message that gets next to your men and boosts morale.

NOTE: *Your Safety News* is designed to promote better employer-employee relations. Every item is carefully weighed and tailored to this viewpoint!

INSIDE PAGES
(Pages 2 and 3)

THOUGHTLESSNESS IS A THIEF
He'll steal his way into what you're doing, distract your attention and walk off with a finger, arm, eye or foot. Thoughtlessness takes many forms: it may be daydreaming, or worry about some personal problem, or just plain inattention. Anything that distracts you, especially around machinery, is a thief of your personal safety.
PLAYFULNESS IS A PIRATE
He is a deceptive rascal. His hi-jinks may put him in the spotlight, but his practical jokes and showing-off often result in serious bodily injury and even death. And note this: he, himself, has lost a leg! As so often happens, horseplay can boomerang and the practical joker gets hurt too!
AN INTIMATE LOOK AT FOUR VILLAINS
SAFETY LAZINESS IS A SIMON LEGREE
If you are lazy about safety rules, then accidents will have the whip hand. We are safety-lazy when we don't bother to use mechanical guards, to take time to get the right tools for the job, to wear protective equipment such as goggles, hard hats, safety shoes, respirators, gloves, etc. Yes, Simon Legree has a whole pack of accident hounds to trail you.
HAZARDOUS METHODS ARE A HOLD-UP MAN
This villain, unsafe work habits, likes to lie in ambush for the unwary. But how do we fall into bad working habits? It may be by trying to cut corners, by wanting to keep to the old way of doing things, or by over-confidence. It's hard for anyone to believe that an accident can happen to him. It's easier to make excuses to ourselves for ignoring safety rules, but all this only lead us up a blind alley with an accident waiting in ambush.
What You Should Know About Carbon Monoxide
This is a picture of carbon monoxide gas!
That's right, you can't see it. It's colorless, non-irritating, tasteless, practically odorless, but also deadly.
Here are the symptoms of carbon monoxide poisoning: First, a tight feeling across the forehead, followed by headache, throbbing temples, weariness, weakness, dizziness, nausea, loss of muscular control, increased pulse and breathing; BUT if the concentration of the poison gas is high, there may be loss of consciousness without these warning signals.
Just a few breaths of air containing 1% carbon monoxide can be fatal . . . so can one part of carbon monoxide in a thousand parts of air when breathed for 90 minutes.
It is possible for carbon monoxide to leak inside of a car if there is a loose exhaust pipe or manifold connection, blow-out exhaust gasket, cracked exhaust manifold, or leaky muffler. Play it safe.
1. Be sure your muffler and exhaust are in good condition (they can leak long before they become noisy).
2. Always keep a car window open, even a little, for fresh air.
Two Excellent Reasons
For Wearing Safety Shoes

EMPHASIZES SELF INTEREST

Your employes's self interest in his own safety is always emphasized. Constant safety consciousness is promoted by covering household hazards, transit to and from the job and on the job caution against accidents.

CLEVERLY ILLUSTRATES THE POINT

Artwork is carefully chosen to lodge home each point persuasively. The cartoon style makes YOUR SAFETY NEWS as familiar and welcome as the picture packed Sunday supplement.

WINS READERS WITH A FOLKSY APPROACH

Keeping the contents folksy, adding the light note of humor, gets your message across with a nudge instead of a bludgeon. Your monthly chat gets enthusiasm instead of indifference.

RIVETS ATTENTION WITH VIVID COLOR

Generous use of color sparks the message, and adds impact to the contents of YOUR SAFETY NEWS. Each issue is as alive as any news-stand favorite.

HOW TO ORDER:

YOUR SAFETY NEWS may be ordered with either the standard imprint or with your Own Special Imprint. The standard imprint reads "PLEASE COOPERATE FOR THE SAFETY AND HEALTH OF ALL . . . signed . . . A SAFE WORKER."

You can personalize YOUR SAFETY NEWS with the name of your firm and the name or facsimile signature of a company representative as illustrated. Give full instructions for your Special Imprint on the order blank below:

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NOTE: Although a personal signature is effective, some firms substitute: SAFETY DEPARTMENT, YOUR SAFETY COMMITTEE, A SAFE WORKER, etc.

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WRAP 'EM UP FAST!

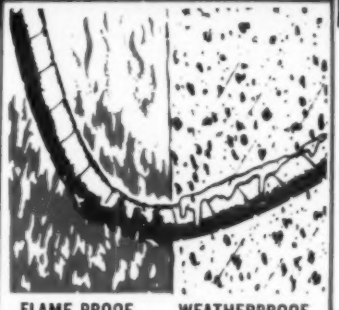
tops for personnel protection and instrument line insulation

You save with Insutape when you have instrument lines that need quick, low cost, effective insulating or wherever close clearances make ordinary insulations difficult to apply.

Insutape also contributes substantial savings where insulation is to be removed and reapplied. Withstands the ravages of intense heat or vibration.

This insulation of a thousand uses is made of long-fibered asbestos rovings, completely enclosed in a tubular woven asbestos jacket, furnished either plain or with Neoprene-impregnated weatherproof jacket. It's tough, resistant to abrasion, moisture, oil and grease... quick and easy to apply. YOU CAN DO IT FASTER WITH INSUTAPE!

Write today for complete information and engineering data



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Insutape's woven asbestos jacket, heavily coated with Neoprene makes it a rugged pipe protector and a highly efficient insulation even under extreme conditions. A snug fit that will properly weatherproof instrument lines and also provide personnel protection. Quick, tight, easy application.

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The wrap-on insulation of a thousand uses

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UNION ASBESTOS AND RUBBER COMPANY • FIBROUS PRODUCTS DIVISION

DEPT. 220, Bloomington, Illinois

(For details, use Key # S-18 on card on page 1)

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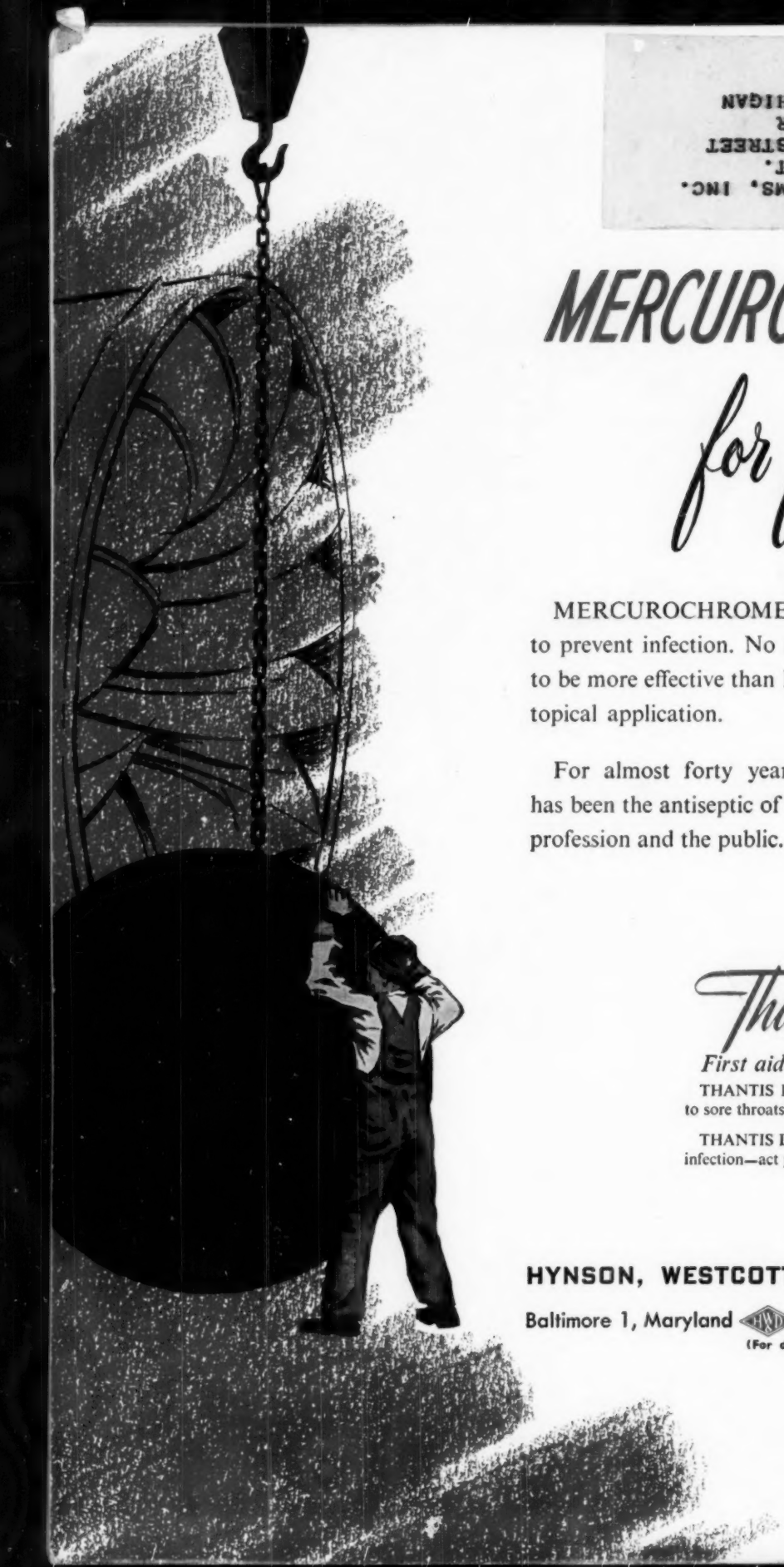

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First aid for throat irritations . . .

THANTIS Lozenges prevent lost man hours due to sore throats caused by coughs or colds.

THANTIS Lozenges relieve pain promptly—reduce infection—act prophylactically.

HYNSON, WESTCOTT & DUNNING, INC.

Baltimore 1, Maryland

(For details, use Key # S-19 on card on page 1)